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THE DEVELOPMENT OF A TOXEMIC CONDITION IN THE DOG DURING GESTATION*

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If information is sought from the textbooks on obstetrics and from many of the papers that deal with the pregnancy toxemias, the outcome is not infrequently an elaborate classification of these states which ranges all the way from a toxic psychosis to acute yellow atrophy of the liver. Such classifications may be necessary in order to clarify superficially a group of conditions the cause of which is unknown but which manifest themselves clinically by a wide variety of symptoms. Few attempts have been made through systematic study to determine whether there does not exist during gestation some generalized disturbance in the pregnant organism which may manifest itself through different organs and be in part responsible for changes in these tissues. Among these few and quite different from the usual type of investigation of these toxemias are the splendid studies of Stander and his associates,[1] Loeser[2] and Bakelmann.[3]

For the past fourteen years, studies have been in progress in this laboratory on pregnant dogs during normal gestation periods,[4] when such periods were made abnormal by a pregnancy superimposed on a naturally acquired nephritis or when an acute nephritis was induced during the pregnancy.[5] In addition, observations have been made in pregnant animals of the toxicity of a period of ether anesthesia, and methods for protecting such animals against the toxic effect of the anesthetic have been suggested.[6] It is with the observations which have been made in certain of these studies and in an investigation which has hitherto not been reported that this address will concern itself.

GENERAL COURSE OF THE EXPERIMENTS

During the past fourteen years, 121 pregnant dogs have been under observation in this laboratory. Seventy-seven of the animals were "served" with a male in the kennels. The remaining dogs were pregnant when brought to the laboratory. In twenty-seven of them, the duration of gestation could be accurately ascertained. In the remaining seventeen dogs, the duration of pregnancy could be only approximately estimated. The animals which were impregnated in the kennels, as well as those which were pregnant when brought to the laboratory, were kept in metabolism cages for four days, during which period, on two alternate days, the following observations were made. Catheterized urine was examined for albumin, dextrose and diacetic acid. Centrifugalized specimens were studied for casts. The phenolsulphonphthalein test for renal function was made according to the method devised by Rowntree and Geraghty.[7] Blood urea-determinations were made by the method of Marshall[8] as modified by Van Slyke and Cullen,[9] and the nonprotein nitrogen and creatinine were determined by the methods of Folin and Wu.[10] Reserve alkali determinations of the blood were made by the Marriott[11] method. Neither the water intake nor the food was restricted. The diet consisted of bread with a variable amount of butter, scraps of cooked meat and milk.

As a result of these observations, I have obtained data on eighty-five dogs before impregnation. Seventy-seven of these animals did not give any evidence of a departure from the normal as indicated by the tests that have been used. The urine was free of albumin, casts, dextrose and diacetic acid. The blood urea varied from 11 to 18 mg. per hundred cubic centimeters of blood, the nonprotein nitrogen from 22 to 45 mg. and the creatinine from 1.8 to 2.5 mg. The output of phenolsulphonphthalein in a two hour period when the dye was given subcutaneously varied from 63 to 89 per cent. The reserve alkali of the blood gave readings which varied from 8.0 to 8.2. Eight of this group of animals before becoming pregnant gave evidence of a renal injury. The changes in the blood and urine will be noted in a later part of this study.

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* Chairman's address, read before the Section on Pharmacology and Therapeutics at the Seventy-Eighth Annual Session of the American Medical Association, Washington, D. C., May 19, 1927.

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Forty-four dogs were brought to the laboratory at various stages of pregnancy. Of this number, thirty-nine were normal. Five of this group showed evidence of a renal injury. Albumin and casts were constantly present in the urine of four of the dogs. In the fifth animal, the occurrence of albumin and casts was variable. In two of the dogs the urine contained dextrose and diacetic acid. The phenolsulphonphthalein elimination varied from 38 to 77 per cent. The blood urea varied from 18 to 68 mg. per hundred cubic centimeters of blood, and the nonprotein nitrogen from 30 to 140 mg. The creatinine did not show an increase. With the exception of one of the animals whose urine contained both dextrose and diacetic acid, the reserve alkali determinations of the blood have been normal. In this animal, the reserve alkali readings were 7.95 on three consecutive days.

As a result of these initial observations, two groups of animals present themselves for study: first, a group of seventy-seven dogs in which observations were obtained before the commencement of gestation and which were studied by the methods outlined during the gestation period (nine weeks in the dog) to its termination, and second, a group of thirteen animals, eight of which before the development of pregnancy gave evidence of renal disease and five of which after pregnancy had occurred showed a similar type of injury. The discussion that is to follow will be concerned with these two groups of pregnant animals.

THE COURSE OF GESTATION IN NORMAL DOGS OF DIFFERENT AGES

In previous publications, studies have been made in which the factor of the age of the animal was considered in its response to intoxications by uranium nitrate,[12] in its susceptibility to the general anesthetics [13] and in its reaction to certain changes that may develop during pregnancy.[4] The following account represents a study of the changes developing during pregnancy in seventy-seven normal dogs in which the duration of the gestation period was accurately known. The animals varied in age from 8 months to 10 years and 4 months. On the basis of the ages of the dogs they may be divided into three groups, as was previously done in a former publication: [14] Group 1 is represented by twenty-three animals between the ages of 8 months and 3 years; group 2, by thirty-five animals between 3 and 6 years of age, and group 3, by nineteen animals between 6 years and 10 years and 4 months. Before they had become pregnant, the animals were studied on two occasions to obtain normal observations, and after the development of the pregnancy they were observed at the end of the first month and during the terminal week of the gestation period. The preliminary observations showed the animals, regardless of the age grouping, to be normal. The urine was free from abnormal constituents, the blood urea varied from 11 to 18 mg., the nonprotein nitrogen from 22 to 45 mg., and the creatinine from 1.8 to 2.5 mg. The elimination of phenolsulphonphthalein in a two hour period has varied from 63 to 89 per cent. The reserve alkali of the blood gave readings between 8.0 to 8.2. The animals of group 1, between 8 months and 3 years of age at the end of the first month of the gestation period showed no change from the normal observations. During the eighth week of the pregnancy, three of the animals in this youngest group showed a reduction in the reserve alkali of the blood from the normal readings of 8.0 or 8.1 to 7.95. At the time of this change in the acid-base equilibrium of the blood the urine was normal, and the elimination of phenolsulphonphthalein was not reduced. In one of the animals in which this disturbance occurred, the output of the dye had increased from 68 per cent before the development of the pregnancy to 77 per cent. There was no retention of blood urea, nonprotein nitrogen or creatinine. The three dogs that developed a reduction in the alkali reserve of the blood to 7.95, on the third day after the termination of the pregnancy, gave normal reserve alkali determinations. The remaining twenty animals of group 1 went to the end of the gestation period without showing any departure from the normal.

Group 2 is represented by thirty-five dogs between 3 and 6 years of age. At the end of the first month of the gestation period, the urine from all the animals was normal. The elimination of phenolsulphonphthalein was normal, and varied from 68 to 77 per cent. In three of the animals at this early period of pregnancy, the reserve alkali of the blood had undergone a depletion. In two of the animals the readings had been reduced from 8.1 to 7.9, while in the third animal the reduction was from 8.05 to 7.85. During the fifth week of the pregnancy of the latter animal, the urine showed a heavy trace of albumin and diacetic acid. Granular casts were present. The elimination of phenolsulphonphthalein was unaffected. There was no retention of blood urea, nonprotein nitrogen or creatinine. On the morning following these observations, the animal had developed an air-hunger type of breathing. The reserve alkali of the blood was depleted to 7.8. During the day the pregnancy came to a natural termination, with a gradual return of the reserve alkali to the normal.

During the terminal week of the pregnancy in this group of animals, fourteen developed some type of disturbance which rendered them abnormal. Four of the fourteen dogs developed an albuminuria with casts. The urine in two of these animals contained diacetic acid. In one of the animals the elimination of phenolsulphonphthalein was reduced from 64 per cent to 38 per cent. In the remaining three dogs, the output of the dye was unaffected. All the fourteen animals showed a reduction in the reserve alkali of the blood.

Group 3 is represented by nineteen dogs between the ages of 6 years and 10 years and 4 months. In this oldest group, sixteen had a normal urine at the end of the fifth week of the pregnancy and a normal elimination of phenolsulphonphthalein. Twelve of the sixteen animals had developed at this early stage of gestation a reduction in the reserve alkali of the blood. The remaining three animals of the group showed no departure from the normal. By the end of the final week of gestation, seventeen of the nineteen animals in this oldest group showed a reduction in the reserve alkali of the blood of from 7.95 to 7.8. Five of these animals developed an albuminuria which varied from a heavy trace to 3.1 Gm. per liter. Fine and coarse granular casts were numerous. The elimination of phenolsulphonphthalein failed to show any relationship to the amount of albumin in the urine or to the degree of reduction in the reserve alkali of the blood. In the sixteen animals of the group that failed to remain normal during the pregnancy, the output of phenolsulphon-

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phthalein was reduced in seven of the animals. The most marked reduction was from 72 to 21 per cent. In six of these animals there was a retention of blood urea which varied from 27 to 52 mg. per hundred cubic centimeters of blood and of nonprotein nitrogen from 60 to 125 mg. In one of the animals there was a creatinine retention of from 1.5 to 3.8 mg. One of the animals in this small group in which the reserve alkali had been reduced to 7.8 died in air-hunger without convulsions, while a second animal in which the reserve alkali was reduced only to 7.9 was found in convulsions and died in the third convulsion.

The autopsies on these two animals have shown the same type of changes in the kidneys and in the liver. The kidneys were large and pale and did not show any superficial or deeper areas of hemorrhage. The cut surface was pale and the cortex had a swollen appearance. The histologic study showed the renal injury to be confined to the epithelial tissue. The cells of the tubules showed cloudy swelling, vacuolation and necrosis. These changes were most marked in the epithelium of the convoluted tubules. Stainable lipoid material was abundant in the cells of the ascending limb of Henle's loop, where it occurs as large droplets. In the convoluted tubule cells it appears as dustlike particles. The livers from these two animals were pale and friable. The outline of the lobules was indistinct or had disappeared. The microscopic study showed a diffuse type of change involving fairly uniformly all parts of the lobules. The changes in the liver cells were similar to those described for the kidney and consisted in a marked edema and necrosis. Hemorrhagic areas were not observed, and no evidence of congestion existed within the lobules.

COMMENT

1. In normal dogs during the period of gestation there is a tendency for the acid-base equilibrium of the blood to become disturbed, as is shown by a reduction in the reserve alkali of the blood. This disturbance is not a retention phenomenon developing secondary to a renal injury. In a certain number of the animals it occurred when the urine was free from albumin and casts, when the elimination of phenolsulphonphthalein was normal or the output even increased above the normal, and when there was no retention of blood urea, nonprotein nitrogen or creatinine.

2. This disturbance in the acid-base equilibrium of the blood during pregnancy in normal dogs was associated with the age of the animal and the duration of the gestation period. The disturbance is more apt to occur in the older groups of animals and is more frequent and furthermore more marked as the termination of the gestation period is approached.

3. The clinical test so often employed as suggestive or indicative of an acid intoxication in pregnancy, the occurrence of diacetic acid in the urine, is of questionable value, for a reduction in the reserve alkali of the blood occurred in these animals when there was no evidence of a renal injury which might induce a retention of such bodies and when there was no diacetic acid in the urine.

4. The phenolsulphonphthalein test for renal function in certain toxemic conditions which may develop during gestation in the dog is variable in its trustworthiness. The percentage elimination of this dye frequently shows no parallel with other evidence of a renal injury, and determinations of its output affords no information concerning the accumulation in the blood of bodies that may disturb the acid-base equilibrium of the blood.

5. The most constant departure from the normal that has been observed in these groups of pregnant animals was a reduction in the reserve alkali of the blood. The fact of the relationship of its occurrence to the age of the pregnant organism and the lack of any relationship between its development and a renal injury would indicate that gestation in a normal animal may induce some change in the organism as a whole which is responsible for this disturbed equilibrium.

THE COURSE OF GESTATION IN NATURALLY NEPHROPATHIC DOGS

The following observations have been made on thirteen dogs. Eight of this number were known to be nephropathic before the pregnancy occurred. The remaining five animals were pregnant when first observed and gave evidence of a renal injury. In the latter group it was impossible to determine whether or not the nephropathy existed prior to the pregnancy. Except for certain differences, which will be noted, the evidence of a renal injury was similar in the two groups. Albumin and casts were constantly present in the urine. The casts were narrow and were mostly hyaline in structure, with occasional fine and coarse granular types. Two of the thirteen dogs showed a tract of dextrose in the urine. These animals, and in addition three others, gave a positive test for diacetic acid in the urine. The blood urea per hundred cubic centimeters of blood varied from 22 to 31 mg., and the nonprotein nitrogen from 51 to 73 mg. The creatinine was not increased. The elimination of phenolsulphonphthalein varied from a minimum output of 38 per cent to a maximum output of 63 per cent. The reserve alkali of the blood in the eight animals that were known to be nephropathic before the pregnancy occurred was normal, and varied between 8.05 to 8.15. Two of the five dogs that were nephropathic and pregnant when first observed had a normal alkali reserve of the blood. In the remaining three animals, the reserve alkali was depleted to 7.95, 7.95 and 7.9, respectively. In those dogs in which there was a reduction in the reserve alkali of the blood at the time of the first observation, the urine contained a larger amount of albumin than was the case with the animals in which the reserve alkali was normal at the commencement of gestation. The amount of albumin varied from 0.8 to 3.2 Gm. per liter. The elimination of phenolsulphonphthalein was reduced in all the animals. There was no relationship between the output of the dye and the amount of albumin in the urine. In one of the animals in which there was an elimination of phenolsulphonphthalein of 62 per cent, the urine contained 3.2 Gm. of albumin per liter. The urine was free from diacetic acid. A second animal with a phenolsulphonphthalein elimination of 38 per cent had only 0.8 Gm. of albumin in the urine.

The observations that have been made on the thirteen pregnant nephropathic dogs makes it possible to divide them into two groups. Both groups of animals, so far as their ability to maintain during pregnancy a normal acid-base equilibrium of the blood was concerned, reacted to the pregnancy as did the senile group of normal animals previously described. There was an early reduction in the reserve alkali, and the reduction became more marked as the pregnancy advanced. By the end of the fourth week of the gestation period, the reserve alkali had undergone a reduction in all of the

thirteen animals. The depletion varied from a minimum reduction from the normal of 8.15 to 8.0, to a maximum reduction from 8.1 to 7.9. Associated with this depletion, but in no sense dependent on it, the amount of albumin increased in the urine. The elimination of phenolsulphonphthalein was variable and did not show any correlation with the amount of albumin in the urine or the degree of depletion in the reserve alkali.

In nine of the thirteen animals in the first group there occurred during the latter half of the gestation period a progressive reduction in the reserve alkali of the blood and an increase in the amount of albumin in the urine. The reserve alkali readings during this period varied from 7.85 to 7.7. The amount of albumin varied from 1.8 to 6.3 Gm. per liter. All these animals showed the presence of diacetic acid in the urine. The elimination of phenolsulphonphthalein varied from 21 to 42 per cent. A moderate degree of blood retention developed at this late period of gestation in all the dogs. The blood urea varied from 23 to 61 mg. and the nonprotein nitrogen from 53 to 131 mg. In one of the animals the creatinine was increased from 1.5 to 3.7 mg.

In this group of nine animals presenting a marked disturbance in the reserve alkali of the blood, a large output of albumin in the urine, and a variable elimination of phenolsulphonphthalein without an excessively high retention of urea and nonprotein nitrogen, the pregnancy terminated naturally in all except two animals. In these animals the reserve alkali was reduced to 7.7. The dogs developed an air-hunger, became comatose, and died. At autopsy the kidneys of these animals were pale and large, and the capsule was not adherent. The histologic study showed a chronic glomerulonephritis of moderate severity. The capsular changes were more marked than those affecting the capillary loops. The capillaries were not obliterated and matted together. The vessels contained blood. The tubular epithelium showed only slight evidence of a chronic injury. The cells were of the normal type and there was no evidence of processes of repair. The periglomerular and intertubular tissue had not participated in the injury. The acute injury was essentially of an epithelial character.

The epithelial tissue in general, with the exception of that in the collecting tubules, was edematous and in areas necrotic. In other areas the presence of mitotic figures was indicative of the commencement of reparative processes.

The liver in both the animals appeared enlarged and was pale. The lobules were indistinct. Histologically, the liver cells showed a general edema which affected all parts of the lobule. Necrosis of the cells was marked. There was only slight evidence of an invasion of this tissue by leukocytes or endothelial cells. The changes were not characteristic of an inflammatory reaction. There were no hemorrhagic areas. The pathologic changes of the liver were entirely different from those encountered in eclampsia.

The second group of naturally nephropathic animals which was studied during the course of gestation is represented by five dogs. It was possible to make observations on only one of these animals before the commencement of pregnancy, as the remaining four dogs were within the first four weeks of the gestation period when brought to the laboratory. In this animal the routine blood and urine studies before pregnancy showed 0.8 Gm. of albumin in the urine and both hyaline and narrow granular casts. Neither dextrose nor diacetic acid was present. The elimination of phenolsulphonphthalein was 53 per cent. The reserve alkali of the blood was 8.1; the blood urea was 27 mg. per hundred cubic centimeters of blood, and the nonprotein nitrogen was 61 mg. There was no retention of creatinine. At the end of the gestation period the reserve alkali was reduced to only 7.95, and the phenolsulphonphthalein output was reduced from the normal of 53 per cent to 14 per cent. The blood urea retention had increased to 71 mg.; the nonprotein nitrogen to 158 mg., and the creatinine to 2.1 mg. The urine contained 3.2 Gm. of albumin per liter and dextrose, but diacetic acid was not present. After the termination of the pregnancy the condition of the animal improved but did not return to that observed before the commencement of pregnancy. Six weeks later the dog died with the changes characteristic of a terminal renal failure.

The remaining four dogs in which normal observations could not be made before gestation showed the same type of response during the pregnancy. The urine showed an increase in albumin which did not go above 2.8 Gm. per liter. There has been a moderate reduction in the alkali reserve of blood, which in one animal was 7.85. The elimination of phenolsulphonphthalein showed a marked reduction, which in one animal was plus or minus 10 per cent. A marked retention of blood urea and nonprotein nitrogen occurred, and to a less extent a retention of creatinine. Two of the five animals died in convulsions without developing an air-hunger type of breathing. The three remaining dogs completed the period of gestation. The autopsies on the two animals which died in convulsions showed the following changes in the kidneys and liver: The kidneys were small and pale, and the surface showed numerous small scars to which the capsule was adherent. The cut surface gave evidence of rather diffuse connective tissue formation. The cortex was pale and thinned and marked by streaks of connective tissue. Histologically, the changes were those of a chronic capsular and intracapillary glomerulonephritis with a definite proliferation of periglomerular and intertubular connective tissue. This type of naturally acquired renal injury in the dog along with certain functional studies has been described in detail in previous publications.[15] The distribution of the chronic glomerular changes, though they varied in extent, occurred throughout the kidney. The tubular epithelium in this type of chronic renal injury, especially that of the convoluted tubules, was very frequently of a regenerated, flattened, apparently less specialized type than is normal for this portion of the tubule. The acute changes in the kidney associated with the pregnancy and the decrease in its functional value did not affect the glomeruli but occurred in the tubular epithelium. The changes consisted of various degrees of cloudy swelling, vacuolation and necrosis. There was no evidence of recent epithelial repair.

The liver in the two animals which were examined post mortem showed the type of diffuse change that has been described. There was no localization of these changes to different parts of the lobule. The cells in general showed edema and necrosis. Hemorrhagic areas in the liver were not observed.

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SUMMARY

1. Conditions that may be looked on as some type of toxemia of pregnancy are of infrequent occurrence, but they may develop in the dog and thus furnish material for experimental study.

2. In normal pregnant animals there is a definite tendency for the acid-base equilibrium of the blood to become disturbed. Such a disturbance is more apt to occur in old animals, and is furthermore more marked in the latter weeks of the gestation period than early in this period. This change is not dependent on a renal injury and is therefore not a retention phenomenon secondary to such an injury. The cause for the change is unknown. The frequency of its occurrence would tend to support the suggestion made by Wilson [16] and others of the value of a solution of sodium bicarbonate with or without dextrose during certain of the departures from the normal which may develop during gestation. In these normal animals, the detection of diacetic acid in the urine is of no value in deciding whether or not an acid intoxication exists.

The phenolsulphonphthalein test for renal function and the amount of albumin in the urine may be misleading as guides to the degree of renal impairment. Retention of blood urea, nonprotein nitrogen and especially creatinine furnish a more dependable index.

3. An insufficient number of naturally nephropathic animals were studied to permit safe deductions. In one type of such animal with an early chronic glomerular injury, following the development of pregnancy, changes occurred in the urine and blood which were, in general, similar to those described as rarely occurring in normal pregnant animals. The retention of urea, nonprotein nitrogen and creatinine were not marked. The depletion of the reserve alkali of the blood and the amount of albumin in the urine was marked. The elimination of phenolsulphonphthalein was variable. Such animals tend to recover, and following the gestation period the acid-base equilibrium of the blood is readjusted, the amount of albumin in the urine is rapidly reduced or disappears, and, in case the elimination of phenolsulphonphthalein has been reduced, it tends to return to the normal. The animals that died developed clinically the symptoms characteristic of an acid intoxication.

In a second type of pregnant naturally nephropathic dog, two of which came to autopsy, there was evidence of an advanced chronic glomerulonephropathy with the tubules containing altered epithelium as a result of the chronic process. The functional changes in these animals were different from those in the first group. The amount of albumin in the urine was less marked than in the first group, and even late in the pregnancy only a moderate reduction in the reserve alkali of the blood occurred. On the other hand, the elimination of phenolsulphonphthalein was decidedly reduced and there was a marked retention of urea, nonprotein nitrogen and, to a less extent, of creatinine. In this group of animals when the gestation period was terminated there was no marked improvement in the functional capacity of the kidney. It would appear that if the renal injury during pregnancy dominates in the tubular epithelium, the animal, following gestation, has a chance to repair this injury and return to, or toward, the normal. If the renal injury which has developed prior to pregnancy is largely glomerular in character and is associated with altered epithelium in the tubules, the acute changes in the tubules occurring with the development of certain toxemic conditions during gestation prevent a second epithelial regeneration and these animals fail to return toward the normal.

4. From a survey of the data obtained in normal pregnant animals and in animals with a naturally acquired chronic nephropathy, it is difficult to escape the conviction that associated with gestation there is a definite tendency on the part of the animals, irrespective of any renal injury, not to maintain a normal acid-base equilibrium of the blood. The value of stabilizing this equilibrium during pregnancy or correcting a disturbance when it develops are problems for future investigation.

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HEMATOPOIETIC EFFECT OF NUCLEAR EXTRACTIVES IN EXPERIMENTAL ANEMIA AND IN HUMAN ANEMIAS *

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The hematopoietic effects produced by administration of bone-marrow and spleen extracts,[1] by liver feeding,[2] and by intravenous injections of washed nuclei and sodium nucleate,[3] suggest that the results obtained may be due to a factor or to several factors which these substances possess in common.[4] A considerable amount of nuclear material is the most obvious common characteristic. We have therefore extracted nucleoproteins and nucleic acids from dog and beef livers, and have administered these, separately and in combination, into normal animals, with hematopoietic results very similar to those previously reported as the result of treatment with nuclei and sodium nucleate from fowl's blood. It should be stated that the nucleic acids obtained from livers were also in the form of sodium nucleate, and were prepared by the method of Kossel-Neumann. The nucleoproteins were prepared by the method of Hammarsten.

In view of the results on normal animals, it appeared desirable to obtain an experimental hemolytic anemia of some duration in animals in order to study the effects of nuclear compounds in anemia. This objective was attained in rabbits by repeated intravenous injections of sterile distilled water by a method similar to that of Sapinoso, Berg and Jobling,[5] except that we used larger doses of water. Injections were made at

* From the Departments of Anatomy and Medicine, University of Oregon Medical School.
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5. Sapinoso, P. R.; Berg, B. N., and Jobling, J. W.: Proc. Soc. Exper. Biol. & Med. **23:** 646 (May) 1926.

intervals of several days until the erythrocyte count was reduced to approximately three million per cubic millimeter. Preliminary experimentation had shown that rabbits will bear, as a rule, 30 to 40 cc. of water per kilogram of body weight, intravenously administered, without serious consequences other than erythrocyte destruction and hemoglobinuria. The water was injected into the lateral ear vein, within a time period of ten minutes, in doses of from 60 to 120 cc., according to the weight of the animal. Hemoglobinuria occurred within from thirty to sixty minutes, and the animals occasionally showed rapid heart beat and

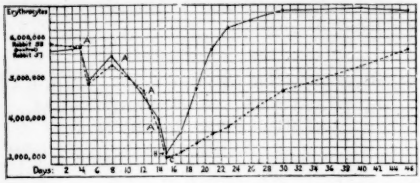

Chart 1.—Typical results in rabbits subjected to experimental anemia followed by intravenous injection of sodium nucleate and nucleoprotein in rabbit 57 (continuous line) and no further treatment in rabbit 58 (broken line): *A*, water injected; *B*, 0.45 Gm. of sodium nucleate and nucleoprotein injected intravenously; *C*, no further treatment.

increased respiratory rate. These symptoms, however, were transitory, never lasting longer than thirty minutes. The erythrocyte destruction was marked and rapid. Without going into details at the present time, the results in two typical cases (rabbits 57 and 58) are illustrated by chart 1. This shows, to the lowest point of the two plotted lines, the effect of water, intravenously injected, on the erythrocyte count. Beyond the low points of the two lines is indicated the effect of treatment with nucleoprotein and sodium nucleate, in the one case (rabbit 57, continuous line) as contrasted with the result of no further treatment in the control animal (rabbit 58, broken line).

These two animals were litter mates and had been kept under identical conditions from birth. Like conditions were continued during the course of the experiment. Each rabbit weighed 3 Kg. at the time when injection of water to produce the anemia was begun. The initial blood counts were 5,638,000 erythrocytes and 8,640 leukocytes for rabbit 57, and 5,860,000 erythrocytes and 7,600 leukocytes for rabbit 58. A second count four days later, before any treatment was begun, showed 5,760,000 erythrocytes and 7,920 leukocytes, and 5,780,000 erythrocytes and 8,100 leukocytes, respectively.

As a result of intravenous administration of 100 cc. of sterile distilled water, after the second counts were made, the erythrocyte number was reduced in twenty-four hours to 4,900,000 per cubic millimeter for rabbit 57, and 4,820,000 per cubic millimeter for rabbit 58. There was, at the same time, an increase in leukocyte count to 9,240 and 9,500 per cubic millimeter, respectively. The leukocytes continued to increase in number during the greater part of the period of observation after treatment with the nuclear compounds, as well as after water injection. This fact will not be further considered at the present time. Meiser [6] observed hyperleukocytosis in dogs after subcutaneous injections of nucleic acids. Kaupp [7] has reported similar observations in horses following nuclein administration, and Tschernorouzki [8] has noted the same phenomena in dogs.

In our animals the erythrocyte number began to increase again within twenty-four hours after the first injection of water. Within three days the count was 5,460,000 in rabbit 57, and 5,290,000 in rabbit 58. A second injection of water four days later further reduced the counts to 4,510,000 and 4,620,000, respectively. A third injection two days after the second one reduced the counts still further to 3,860,000 and 3,740,000 per cubic millimeter, respectively. A fourth dose of water five days after the third one brought the counts down to 3,060,000 for rabbit 57 and 2,960,000 for rabbit 58, as illustrated in the chart. The entire period from the first injection of water to the last was eleven days. Preliminary experiments had indicated that reduction of the erythrocyte number much below 3,000,000 per cubic millimeter in rabbits by this method was usually followed by serious consequences and frequently by death. The preliminary observations had also indicated that the rebound in erythrocyte count was much lower after a third or fourth massive dose of water than after the first or second doses. This was interpreted as pointing to beginning exhaustion of the bone marrow. The series of which rabbits 57 and 58 are typical examples was therefore not subjected to further destruction of red cells after a level of approximately 3,000,000 per cubic millimeter was reached. Seven of the rabbits of the series were then given intravenously 0.45 Gm. of equal parts of nucleoprotein from liver and sodium nucleate from fowl's blood. The remaining five rabbits were continued under observation without further treatment, after the water injections had produced the degree of anemia desired. The entire series of twelve animals was kept under identical conditions and had free access to an unlimated quantity of the same food, consisting of alfalfa hay and cracked barley. Water was available to the animals at all times.

Chart 1, representing the two typical rabbits 57 and 58, shows the changes in the blood count, following treatment in the one case and the rebound without treatment in the other animal. The treated animal

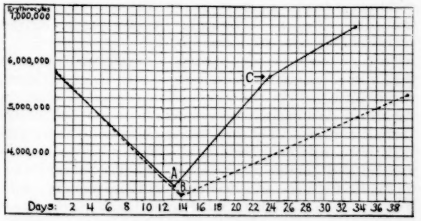

Chart 2.—Averages of seven rabbits treated with sodium nucleate and nucleoproteins after experimental anemia (solid line), and of five control rabbits (broken line) which were made anemic but not treated: *A*, 0.45 Gm. of nucleoprotein and sodium nucleate; *B*, no further treatment; *C*, approximate preinjection level.

showed a return to an erythrocyte count of 3,360,000 in two days, 4,700,000 in four days, and 6,680,000 in fifteen days. These results are in contrast with those obtained on the control animal, which were 3,100,000, 3,320,000 and 4,620,000 on the corresponding days. Thirty-one days after this phase of the experiment was begun, the rabbit which received the nuclear compounds still showed an erythrocyte count of more than one million per cubic millimeter above the initial number,

6. Meiser, J.: Med. Klin. **2**: 1946, 1911.
7. Kaupp, B. F.: Am. Veterinary Rev. **40**: 306, 1911.
8. Tschernorouzki, M.: Biochem. Ztschr. **44**: 353, 1912.

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whereas the control animal had barely returned to approximately the initial level.

As stated before, the two rabbits just described represent typical cases. In chart 2 the averages for seven rabbits which were treated with the nuclear compounds are shown in contrast with the averages for five control animals which received no treatment. The two groups were subjected to the same procedure of water injection to produce anemia. As is shown in the chart by the nearly parallel course of the lines, the two groups responded to the injection of the water in an almost

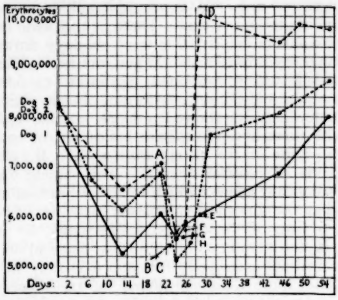

Chart 3.—Effect of nucleoproteins administered by mouth on erythrocyte count in dogs after experimental anemia: *A*, final injection of water; *B*, no further treatment, dog 1; *C*, nucleoprotein feeding begun, dogs 2 and 3; *D*, reticulocytes, 24 per cent; *E*, reticulocytes, 16 per cent; *F*, reticulocytes, 12 per cent; *G*, reticulocytes, 10 per cent; *H*, reticulocytes, 16 per cent.

identical manner. A low erythrocyte count, which averaged 3,128,000 in the control group, was reached in an average time of a little more than fourteen days, and an average low count of 3,280,000 in the group which later received treatment was reached in an average time of a little more than thirteen days. After treatment with the nuclear compounds the latter group rebounded to approximately the average preanemia level of 5,739,000 in an average time of ten and three-sevenths days. These animals continued to show an increase in erythrocyte count until in an average time of twenty and four-sevenths days after the beginning of treatment an average count of 6,771,000 was attained. This result stands in contrast with the slow return of the erythrocyte count in the control group of five animals, represented in the chart by the broken line. After twenty-five and three-fifths days, average time, the rabbits of this group had rebounded without treatment, after the anemia was induced, to 5,331,000 erythrocytes per cubic millimeter, as against the initial average for the group of 5,682,000.

The results presented indicate only erythrocyte counts, without hemoglobin estimation or reticulocyte percentage; but in view of the striking difference between the treated and the control animals, we feel justified in drawing the conclusion that nucleoprotein and the sodium salt of nucleic acids have a definite and marked hematopoietic effect when injected intravenously into anemic rabbits as well as in the case of normal animals.

To determine whether these substances are effective when introduced by mouth, we have thus far studied the results in a series of four dogs. These results are in such accord with those obtained in rabbits by intravenous administration of the same products that we feel justified in presenting them briefly, despite the small number of animals in the series. The four animals were maintained on a diet of dog biscuit and water for a preliminary period of four weeks. The dog biscuit, according to the formula supplied by the manufacturer, contained 20 per cent protein, 59.2 per cent carbohydrate, 4.1 per cent fat, 4.0 per cent fiber, 4.7 per cent mineral, and 8.0 per cent moisture. Six per cent of the total weight of the mixture was made up of meat meal protein. On this diet alone the animals remained in apparent health but became somewhat emaciated. Two weeks before the production of experimental anemia was begun, one-fourth pound of chopped meat was added to the diet of each dog daily. They were fed in such a manner that each animal obtained only his own ration and completely consumed it. Hemolytic anemia was produced, as in rabbits, by intravenous injection of water in doses of from 260 to 300 cc., at intervals of from two to seven days. Two of the dogs were intended as controls, but one sickened and died, apparently as a result of the treatment designed to produce the anemia. The dog was a young animal, 8 months of age, whereas the remaining three were adult dogs. We did not attempt the quantitative controls on hemoglobin loss, practiced by Whipple and Robscheit-Robbins [9] in their painstaking work, but the results obtained in increased erythrocyte count as well as hemoglobin percentage on the treated dogs, as compared with the control animal, appear to leave small room for doubt as to the effect of the nucleoproteins and nucleic acid salts administered.

The initial erythrocyte counts in the three animals which survived, of 7,680,000 for dog 1, 8,120,000 for dog 2, and 8,360,000 for dog 3, were reduced by injection of water in twenty-four days to 5,568,000, 5,680,000 and 5,126,000, respectively. In addition to the erythrocyte count, the hemoglobin percentage (Sahli-Haskins method) and the reticulocyte percentage (brilliant cresyl blue method) were obtained. The hemoglobin percentage was reduced from 96 to 68 in dog 1, from 98 to 70 in dog 2, and from 96 to 58 in dog 3 during the same period, as indicated in connection with the erythrocyte

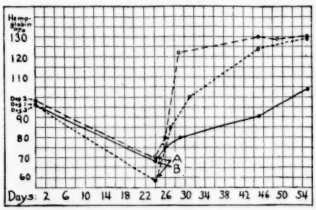

Chart 4.—Effect of nucleoproteins administered by mouth on hemoglobin percentage in dogs after experimental anemia: *A*, nucleoprotein feeding begun; *B*, no further treatment.

count. Beginning on the twenty-fourth day of the experiment, dogs 2 and 3 were given 3 Gm. daily of nucleoprotein and sodium nucleate mixed with their food. Dog 1, the control animal, received no further treatment from this date on, but was given the same diet, in like amount except the nuclear extractives, as the other two dogs. Two days later the amount of nuclear material administered to dogs 2 and 3 was increased to 6 Gm. daily.

9. Whipple, G. H., and Robscheit-Robbins, F. S.: Am. J. Physiol. **79**: 260, 271 (Jan.) 1927.

The results are illustrated in chart 3. Dog 2 showed an increase in erythrocyte count from 5,680,000 per cubic millimeter at the beginning of treatment to 10,000,000 in five days. This high number continued at nearly the same level until the last count was taken twenty-one days after nucleoprotein feeding was begun, when the number was found to be 9,768,000 per cubic millimeter. Dog 3 showed similar results, except that the initial rise was not so rapid. As indicated in the graph, feeding with nuclear extractives in this animal produced an increase in erythrocyte count from a low point of 5,126,000 to 7,640,000 in seven days, and

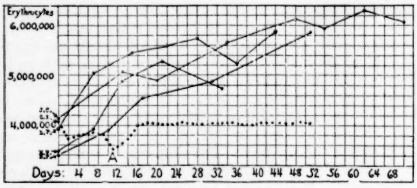

Chart 5.—Effect of administration of nucleoprotein by mouth on erythrocyte count in human patients suffering from secondary anemia: *A*, treatment changed to liver feeding.

a more gradual rise to 8,766,000 in twenty-one days, after feeding with nucleoprotein was begun. The red cell count in dog 1, the control animal, indicated by the continuous line, increased much more slowly than in the other two dogs, and only reached approximately the pre-experimental level twenty-one days after the low point due to the water injection was established.

Two features of these results are worthy of comment. It will be noted that in all three dogs there was an approximately equal rebound during the first two to three days after the low erythrocyte count was established (chart 3). Following this period, however, the treated animals showed an extraordinary increase of erythrocytes during the next three to four days. This was followed by a period of less rapid increase in blood cell formation, and stabilization at a high level, considerably above that shown by these animals at the beginning of the experiment. That the increase in cell count was due to formation of new erythrocytes, rather than to other causes, is indicated by the percentages of reticulocytes, as shown on the chart at various points.

The hemoglobin percentage (chart 4) also increased following the increase in erythrocyte count. In dogs 2 and 3 it rose during the period of observation from 70 per cent to 130 per cent, and from 58 per cent to 128 per cent, respectively; whereas in the control dog it increased from a low point of 68 per cent caused by the experimental hemolysis to 104 per cent during the same period indicated for the other two dogs.

In view of the favorable results on animals, twelve patients with varying degrees of anemia were given nucleoprotein and sodium nucleate by mouth. The greater number had secondary anemia; two cases were diagnosticated as pernicious anemia. The secondary anemias treated were from six months' to three and one-half years' duration. The variation in age of the patients was from 17 months to 79 years. The results of the treatment, as respects erythrocyte count and hemoglobin index, were striking in the younger individuals, represented in charts 5 and 6. Without going into details of clinical history, it will suffice to say that these patients had not responded favorably to previous treatment. As shown in chart 5, patient R. P., 2 years of age when treatment began, increased in erythrocyte count from 3,400,000 per cubic millimeter to 5,680,000 within seven weeks. The hemoglobin increased from 38 per cent to 98 per cent within the same period. This child had been anemic from birth. Case B. P. is also worthy of comment. The patient was a girl, aged 13 years, suffering from secondary anemia. When treatment began she had an erythrocyte count of 3,920,000 per cubic millimeter, and 72 per cent hemoglobin. She was given 1 Gm. of nuclear extractives by mouth three times a day. Within four weeks the erythrocyte count had increased to 5,740,000 per cubic millimeter, and the hemoglobin to 96 per cent. These figures were reduced during a severe menstrual flow of six days' duration to 5,248,000 erythrocytes and 90 per cent hemoglobin, but rebounded, under continued treatment, to 5,864,000 erythrocytes and 98 per cent hemoglobin in eight days. The older patients showed a more variable response, but with three exceptions gave indications of beneficial results. One of the exceptions (case G. B., charts 5 and 6) is of especial interest. This patient suffered from secondary anemia which followed a radical antrum operation for chronic hyperplastic sinusitis. She was given 6 Gm. of nuclear extractives daily, by mouth. This was the amount of dried nuclear material obtained, by the methods employed, from approximately 461 Gm., or a little more than one pound, of fresh beef liver. The nucleoprotein administration was continued for eleven days, without apparent benefit. The treatment was then changed to one-half pound of beef liver and one-fourth pound of beef or mutton each day, but this diet has also failed to show any indication of benefit after being continued for forty days.

In view of the results obtained on animals subjected to experimental anemia, and of the response in the patients thus far treated by administration of nuclear extractives, the conclusion appears warranted that nucleoprotein obtained from beef liver serves as a hematopoietic stimulant. Since separated nuclei from

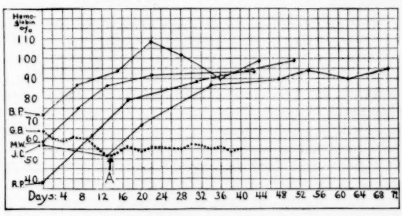

Chart 6.—Effect of administration of nucleoprotein by mouth on hemoglobin percentage in human patients: *A*, treatment changed to liver feeding.

the blood of fowls, and nucleic acids from the same source are also effective in stimulating hematopoiesis in both experimental animals and anemic human beings, as previously reported, it may prove that the nucleic acid element of the nucleoprotein is the active agent. We have some evidence, however, that nucleoprotein administered with the sodium salts of nucleic acids has a more marked effect in hematopoietic stimulation than either of these substances alone. It remains, therefore, to be determined whether the results obtained are due to an interaction between these substances or whether they are due to some split product of these nuclear constituents.

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ENDEMIC ASTHMA DUE TO CASTOR BEAN DUST

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For many years it has been known to Toledo physicians that an "asthma colony" existed in a certain district of East Toledo. Suspicion had long pointed to a linseed oil mill as being the cause of the trouble, for many of these asthmatic patients asserted that their attacks coincided with the odor of linseed oil from the mill when the wind was in the right direction. Complaints had been made at various times to the city health department, but nothing incriminating the oil mill could be found. The state department of health also made an investigation, but did not learn anything of value concerning the unusual number of asthma sufferers in this vicinity.

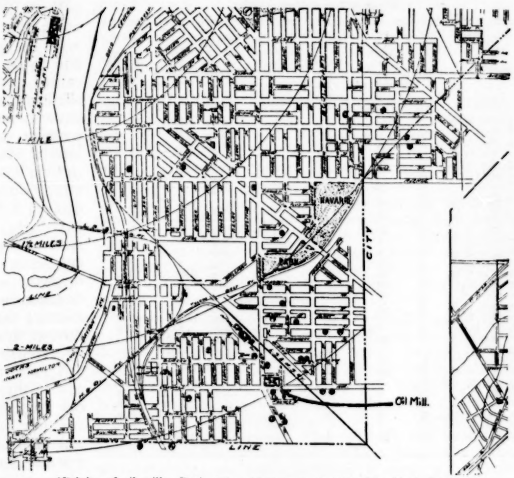
Early in 1927, one of us (R. H. E.) was appointed health commissioner for the city of Toledo. One of the first problems presented was the demand from residents of this district that something be done to prove or disprove the connection of this oil mill with the asthma situation. On investigation, it was found that the oil mill not only manufactures linseed oil but also expresses castor oil from castor beans. After all the oil is removed from the beans, the resulting cake is finely ground to form what is known in the trade as castor bean "pomace." This pomace is sacked and sold as an ingredient of fertilizer, being valuable for this purpose because of its high nitrogen content.

Most of the castor bean residue is recovered and sacked during the process of grinding the "cake" after the oil has been pressed out, but there is a considerable amount of fine dust which does not fall through the screen of the grinding-mill. This dust is blown out into the air through three good sized pipes projecting through the roof of the mill, and at all times when the mill is in operation a fine cloud of this dust can be seen issuing from these pipes. The dust is so fine that it will pass through a 200 mesh wire screen; from this it is apparent how readily it can be carried by the wind.

Previous efforts to solve the relation of this oil mill to the asthma situation centered on linseed oil, because the sufferers had always noted the odor of linseed oil when the wind was in the right direction. However, we found that after the oil was expressed from the flaxseed there still remained about 9 per cent of oil in the flaxseed, making it too heavy to be wind-borne. Furthermore, there was no flax dust blown into the air on the linseed oil side of the mill. Our attention, then, was devoted to a study of the castor bean dust as being the possible cause of these numerous cases of asthma. No doubt the reason it was previously overlooked is that this castor bean dust is almost odorless as compared with linseed oil. The asthmatic sufferers and their families could easily smell the linseed oil fumes but were not aware of the invisible castor bean dust particles in the air.

Across the street from this oil mill is located the Oakdale School. For some time the chief topic discussed at the Parent-Teachers Association meetings at this school had been this asthma problem. Several of the pupils had lost time from school because of asthmatic attacks coming on in school, and many of the parents were also affected for days at a time. The president of this association gave us a list of eighty-five names and addresses of persons living in this vicinity who ascribed their asthmatic attacks to the presence of this oil mill. These persons were asked to report to the office of the city health commissioner, and there the examinations were made.

Of these eighty-five persons, we have had the opportunity of examining thirty-two. Two of these proved to have cases of seasonal hay-fever with pollen asthma, so that there were actually thirty patients seen who had asthma at all times of the year. The histories these patients gave were all quite similar. They all had lived



Vicinity of oil mill. Patients' residences are indicated by black dots.

within a radius of a mile of this oil mill for varying lengths of time. None of them had had asthma before moving to this district, and the onset of the attacks varied from one to seventeen years after moving to this neighborhood. The attacks were nocturnal in the men who worked during the day at a distance from their homes, but occurred day or night in the housewives and children whose work did not take them away from the vicinity. Attacks were most frequent and most severe during the fall and spring months when the wind attained its highest velocity, and these patients invariably had attacks when the wind blew toward their homes from the direction of the mill. Thus, patients on the south side of the mill would have asthma when the wind was from the north, while those living on the north side would be free from attacks at this time. When the wind shifted to some other direction, conditions would be reversed. The mill is in operation day and night except during June, July and August, and it was during these months that the patients were most free from attacks. The histories also showed that many of these

patients found that they could obtain relief by leaving the neighborhood but that the asthma recurred when they returned to their homes; if they went on vacations or moved away from the mile radius of the mill, their asthmatic attacks disappeared.

The accompanying map of the vicinity of the oil mill gives the locations of the homes of those persons examined. From this it is apparent that the greater number live within a radius of one-half mile of the mill and that as the distance from the mill increases, the number of cases decreases. Pollen plates were furnished several of the patients living at various distances from the mill with instructions to leave them exposed for twenty-four hours when the wind was from the direction of the mill. Examination of these plates, however, was unsatisfactory because we were unable definitely to identify the castor bean dust microscopically. The particles of dust, unlike pollen grains, are of different sizes and shapes, so that one could not absolutely identify isolated particles mixed with other dust particles on a slide. We have learned by microscopic examination that a large proportion of the castor bean dust consists of particles about the size of ragweed pollen, which explains the ease with which the wind carries this dust. Also this dust weighs almost exactly the same as a given amount of pure giant ragweed pollen.

Manifestations of Asthma

Subjects	Age	Years of Residence in Vicinity	Years Duration of Asthma	Cutaneous Reactions to Castor Bean Dust	Cutaneous Reactions to Flaxseed	Other Manifestations of Allergy	Family History of Allergy
1. Mrs. F. H.	27	11	10	++++	Neg.	None	Neg.
2. Mr. C. G.	61	8	5	++++	Neg.	None	Pos.
3. Mrs. Z. C.	35	3	4	++++	Neg.	Hay-fever	Pos.
4. Mrs. W. G.	32	10	2	++++	Neg.	None	Neg.
5. Miss M. W.	12	9	4	++++	Neg.	None	Neg.
6. Mr. C. E.	49	2	1	++++	Neg.	None	Neg.
7. A. O.	11	10	3	+++++	Neg.	None	Neg.
8. Mr. G. W.	46	7	1	++++	+	None	Neg.
9. Mr. T. G.	26	7	3	+++++	Neg.	None	Pos.
10. Mr. S. W.	22	7	5	+++++	+	None	Pos.
11. Mrs. E. H.	60	20	18	++++	Neg.	None	Neg.
12. Mrs. E. J.	31	8	2	++++	Neg.	None	Neg.
13. Mrs. M. O.	39	4	1	++++	Neg.	None	Pos.
14. Mrs. R. S.	32	12	3	+++++	Neg.	None	Neg.
15. Miss E. G.	23	10	5	++++	Neg.	Hay-fever	Pos.
16. Mr. W. S.	52	15	2	++++	Neg.	None	Neg.
17. Mr. I. G.	43	5	3	+++++	++	None	Neg.
18. Mrs. F. R.	50	13	½	+++	Neg.	None	Pos.
19. Mrs. M. R.	25	25	15	+++	Neg.	Hay-fever	Pos.
20. Mr. C. C.	35	2½	1	++++	Neg.	None	Neg.
21. Mrs. C. N.	40	20	3	++++	Neg.	None	Neg.
22. Mrs. E. N.	45	7	6	++++	Neg.	Hay-fever	Neg.
23. Mr. C. R.	50	10	3	+++++	Neg.	None	Neg.
24. Mrs. C. G.	45	10	5	++++	Neg.	None	Neg.
25. Mrs. R. P.	25	5	1½	++++++	++	Urticaria	Pos.
26. Mr. E. B.	45	5	1	++++	Neg.	None	Pos.
27. Mr. H. R.	21	3	½	+++++	+++	None	Pos.
28. Mrs. C. DeG.	34	9	6	++++	Neg.	None	Neg.
29. Miss D. C.	18	6	3	++++	Neg.	None	Pos.
30. Mrs. G. B.	53	25	3	++++	Neg.	Hay-fever	Pos.

The thirty patients seen were all tested cutaneously by the scratch method with 1:100 extracts of castor bean dust and flaxseed dust made up with Coca's solution. At first we used the raw dust moistened with tenth-normal sodium hydroxide, but we soon found that extracts of the dusts were more convenient and were just as reliable for testing. Every one of these thirty patients gave positive reactions to the castor bean extract, and the wheals for the most part were remarkable for their size. We designated the reactions ++++ when the wheal measured 2.5 cm. in diameter, but some of the wheals attained a diameter of from 6 to 8 cm., and the pseudopodia extended outward several more centimeters. As will be seen in the accompanying table, only two cases exhibited a cutaneous reaction of less than 2.5 cm. Some of these reactions were delayed for a period of from one-half to four hours but they invariably appeared.

The table also shows that five patients gave cutaneous reactions of varying strengths to flaxseed. We regarded these as examples of multiple sensitization, especially as the castor bean reactions overshadowed so markedly the flaxseed reaction.

We were well aware that castor bean dust contains a very irritating substance, ricin, so we made control skin tests on about forty persons, all with negative results. Many of these control patients belonged in the hypersensitive class as they were subject to hay-fever, asthma and perennial hay-fever. It would appear then that the positive reactions that we obtained in the cases of castor bean dust asthma were specific reactions and not due to the irritating effect of ricin in the extract.

Unfortunately, we could not examine these patients as thoroughly as we desired, for they were not clinic patients and the examinations had to be completed when they presented themselves on the three days set aside by the health department for this work. We also had to be careful that nothing about the examination caused untoward effects, as most of these patients were skeptical working-class people. However, four of these patients were seen by one of us (K. D. F.) in private practice, and all four developed typical asthmatic attacks after a small amount of castor bean dust was thrown into the air for them to inhale. In two the attack came on at once, and in the other two it was delayed a few hours. One of these four patients was extremely hypersensitive, giving +++ or ++++ cutaneous reactions to about forty other proteins. The cutaneous reaction to castor bean extract attained a diameter of 8 cm. This patient lived the greatest distance from the mill of all those examined (about 1⅓ miles); that she developed asthma from castor bean dust at this distance was no doubt due to her extreme hypersensitiveness.

Treatment by desensitization was not attempted in any of these cases because the patients were not under our immediate control. They submitted to examination for the purpose of discovering the cause of their asthmatic attacks, but they did not apply for treatment. Furthermore, we feared accidents from the injections of castor bean extract even in minute doses, because of its highly toxic nature. Early in our work, we performed intradermal tests on two patients, who gave delayed reactions by the scratch method, using 0.01 cc. of a 1:100 extract of castor bean dust. The ensuing inflammatory reaction was terrific, causing a widespread aseptic lymphangitis of the entire arm, which prostrated these patients for several days. In addition, we learned that the workmen in the mill not infrequently suffered from the toxic effect of the castor bean dust if it gained entrance through an abrasion of the skin. Consequently, we were loath to attempt desensitization by injection. It should be added, however, that the two patients who suffered such reactions from the intradermal injection of the extract have not had any asthma since—a period of several weeks. They lived close to the mill and had had almost continuous asthma before. Also, neighboring persons with asthma who were not desensitized by any injection are still having their usual attacks. In view of the evidence we have accumulated, pointing to castor bean dust as the cause of endemic asthma in this vicinity, the city health department has ordered the mill to take steps to prevent the dissemina-

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tion of this dust. We feel that this will effectually relieve those persons in the vicinity whose asthma is due to castor bean dust in a speedier and safer manner than attempted desensitization.

REPORT OF ILLUSTRATIVE CASES

CASE 1.—H. R., a man, aged 21, living in East Toledo, developed asthma about six months before. The first attack began at night, and lasted from three to four hours. The patient had had about six attacks since, all beginning at night. He was a chauffeur for a laundry company and did all his work during the daytime on the west side of the river. There was no history of exposure to animals. He slept on feather pillows and had a feather tick on the mattress. His mother had had asthma when she was younger but outgrew the attacks. Numerous cutaneous tests were done with moderate reactions to hair and feathers, and a strong reaction to flaxseed. Discarding of the feather pillows did not relieve the condition. The patient had both maxillary antrums irrigated without any result. It was thought that as the patient reacted to flaxseed, and as he was handling linen in his occupation as a driver for a laundry, this might have something to do with his attacks. However, about this time we learned of the castor bean dust, and on testing the patient with this dust obtained very marked reactions. He developed an attack of asthma in the office when some of this dust was blown in the air so that he could inhale it. On inquiry, we found that the patient's home on Earl Street was about three fourths of a mile from the factory, and that his bedroom faced this oil mill. Consequently, it became apparent why his attacks occurred only at night and at intervals during the previous six months. Soon after this patient was seen, early in April, 1927, he moved to the south side, and has not had any asthma since changing his residence. It might be of interest to add that this patient gave strong reactions to almonds, kidney beans, string beans, vanilla beans and castor beans. It would seem that there is some substance in these various beans to which he is quite sensitive.

CASE 2.—I. G., a negro, aged 42, had lived in East Toledo for the past five years, and during the past three and one-half years had had severe asthmatic attacks. These attacks were more frequent and more severe during the winter months. They had gradually become so severe that he could not tolerate smoke or fumes of any variety. The patient found that he could obtain relief by going to a sister's home across the river, some miles away. He was first studied at the Toledo Hospital, where he frequently applied for hypodermics of epinephrine. All reactions were normal except those from the cutaneous tests, which showed extreme sensitiveness to various cereals, vegetables, coffee and animal emanations. Elimination of several foods did not bring relief, and a visit to his home did not reveal any cause for the asthma. Finally, when the epidemic of asthma was being studied, the man appeared at the health department, where it was found that he gave very strong reactions to castor bean dust. His home was only a short distance from the mill. On two occasions, he inhaled some of this dust, which almost immediately brought on severe asthmatic attacks. Since being informed as to the probable cause of the asthma, the man has stayed away from his home and has not had any asthma.

CASE 3.—T. G., a negro, aged 26, who lived in East Toledo, one block from the oil mill, for seven years, developed asthma three years before examination, shortly after commencing work at the oil mill. The attacks became so frequent and so severe that the patient was obliged to stop working there. During the past year, the attacks have recurred every three to ten days except when the mill was not in operation during the summer. The patient secured work at a foundry about a mile from this mill, and had never had an attack while working there. The attacks always came on while he was at home, and he had been able to obtain relief by getting on a street-car and riding to the west side of the river. Relief came after two or three hours away from home. One nephew (patient 4) also suffered from asthma.

This patient gave very strong immediate, cutaneous reactions to castor bean dust and negative reactions to flaxseed. He stated that while working at the oil mill he had often noticed the same type of skin reaction (urticarial wheal), when he would scratch after perspiring.

CASE 4.—S. W., a negro, aged 22, who had lived in East Toledo, one block from oil mill, for seven years, began to have asthma five years before, which was severe from the beginning. He worked nights at a foundry about a mile from the mill and was not troubled with asthma while at work. His attacks came on during the day while he was at home and he frequently had several attacks in one day. He did not have any attacks last summer while the mill was not in operation. This man had noticed that attacks invariably came when dust from the mill blew in the direction of his house. By going a few blocks out of range of this dust, he could get relief. Two years before, he worked for one week at the oil mill, but had to stop because of frequent, severe attacks while at work. He gave very strong immediate cutaneous reactions to castor bean dust and negative reactions to flaxseed. This patient also stated that while working at the oil mill he would develop large hives if he scratched himself while perspiring.

CASE 5.—M. W., a school girl, aged 12, who had lived in East Toledo for nine years, began to have asthma attacks four years before, which were becoming more frequent and severe. These attacks were worse in the fall and early spring, and usually came on while the patient was in school, which is just across the street from the oil mill. She had lost from forty to forty-five days of school for the past four years because of asthma. After she had gone home and been in the house for a short time, the asthmatic attack ceased, but recurred when she went to school. This child gave very strong immediate cutaneous reactions to castor bean dust and a negative reaction to flaxseed.

CASE 6.—A. O., a school boy, aged 11, who had lived in East Toledo for ten years, began to have asthma three years before. The attacks were always worse in the winter and the patient often had to come home from school because of asthmatic seizures. He had not gained any weight in the past year. There was no family history of allergic disorders. This boy gave slight immediate cutaneous reactions to castor bean dust which became quite large in twenty minutes. The cutaneous reaction to flaxseed was negative.

CASE 7.—E. G., a woman, aged 23, had lived in East Toledo, a short distance from the oil mill, for the past ten years with the exception of the past two years, which she had spent in another part of the city. Formerly, she had had hay-fever in the fall, but had not had any hay-fever since the asthma began five years before. These attacks came at frequent intervals, and the patient obtained relief from epinephrine administered by a physician. She eventually noticed that the asthma became less intense while she was on the way to the physician's office, and finally attributed its cause to the fumes from the oil mill. For the past two years, except when returning for an occasional visit since living away from home, she had not had asthma. She now always telephoned her home and inquired the direction of the wind before venturing into the vicinity of the mill. The patient gave a very strong immediate cutaneous reaction to castor bean dust and a less intense positive reaction to flaxseed.

The patient had a brother, aged 29, who had severe asthmatic attacks while at home. Going to the country would relieve him—immediately at first and more slowly later. He spent four months in Wisconsin a year ago and was quite free from asthma while there. Since he returned to his home, the attacks had recurred. No other members of the family had asthma or hay-fever.

CASE 8.—C. C., a man, aged 35, now living in West Toledo, had lived a short distance from the oil mill from November, 1924, to September, 1926. He began to have asthmatic attacks in April, 1926, and from then until September, 1926, he had had frequent attacks. He also lost 15 pounds (6.8 Kg.). He had had a severe attack the day before he moved to West Toledo and had not had any asthma since. He has regained his lost weight and is free from the nasal obstruction and frequent "colds" which he had before leaving the vicinity of the mill. There was no history of asthma or of hay-fever in other

members of the family. This man gave large immediate cutaneous reactions to castor bean dust and a negative reaction to flaxseed.

The oil mill has been in operation at its present location in East Toledo since 1906. There are only four other mills in the United States which express castor oil. These mills are located at Edgewater, N. J.; Jersey City, N. J.; Bayonne, N. J., and Bridgeport, Conn. It is possible that they may be the cause of some cases of asthma, although we have no personal knowledge concerning these other mills.

COMMENT

Among the earlier references to castor bean sensitization is that of Bernton [1] who presents the case of a chemist who in the course of his occupation acquired a sensitiveness to the dust of the castor bean.

Van Leeuwen,[2] in his book on Allergic Diseases, makes the following statement:

> Normal people are not susceptible to the action of pure allergens, but they may under certain circumstances become sensitized. This sensitization may take place by injection, as in the case of serum treatment or blood transfusion, but may also be induced by prolonged contact with the allergens, if other irritating substances are present so as to make the skin or mucous membranes more permeable.

To substantiate this statement, Van Leeuwen [3] cites the following illustration:

> This author (Ancona [4]) describes an epidemic of asthma among millers and peasants. The attacks of asthma accompanied by urticaria were caused by handling grain which had deteriorated to a marked degree and contained, among other parasites, a small insect, *Pediculoides ventricosus*. The point of interest is that practically everybody who handled this grain contracted a common skin disease, not of allergic or anaphylactic origin, while all those who came into continuous contact with it after some time developed symptoms of asthma and urticaria. In this case, then, the factor "predisposition" dropped out entirely. The deteriorating grain was irritating to the skin, and the diseased skin no longer offered a sufficient barrier to the allergic substance, which, after passing through the upper zones of the skin, sensitized the people and made them sensitive to subsequent contact or inhalation.

Our series of thirty cases of asthma known to be caused by the same substance (castor bean dust) apparently refutes Van Leeuwen's contention that asthma can occur in normal persons when the factors of irritation and prolonged contact are present. In our series there were only two instances in which two members of the same family suffered from asthma due to castor bean dust. Other members of these families, and of the families of the remaining twenty-six patients, did not suffer from asthma, although the factor of prolonged exposure was present. Furthermore, many men have worked in this oil mill for years, where both the factors of irritation and prolonged contact were present, without ever developing asthma.

The table shows that eleven patients gave a history of allergic manifestations (asthma, hay-fever, etc.) occurring in other members of their families. Perhaps this number would have been found to be larger had we been dealing with patients of higher standing in the social scale. As Kahn [5] has recently pointed out, one should on careful inquiry obtain a family history of allergy in 100 per cent of cases. We feel that our series of cases helps to support the view that asthma occurs only in persons who are hypersensitive through inheritance.

Finally, it may appear strange that all the thirty patients examined by us were proved to have asthma due to one substance. We have no doubt that there are patients with asthma in the vicinity of this oil mill whose trouble is due to other substances than castor bean dust, but it so happened that we saw persons, for the most part, who had long attributed their asthma to the presence of this mill. The examination and tests proved that their suspicions were well grounded.

SUMMARY

1. Thirty cases of asthma are known to have been caused by the inhalation of finely powdered castor bean dust.

2. A linseed and castor oil mill in the neighborhood was found to be the immediate cause in the thirty patients investigated, and the possible cause in fifty-five others reported to be suffering from the same condition.

3. Investigations may show that four other similar mills in the United States are also the cause of local endemic asthma.

316 Michigan Street.

1. Bernton, H. S.: Am. J. M. Sc. **165:** 196 (Feb.) 1923.
2. Van Leeuwen, W. S.: Allergic Diseases, Philadelphia, J. B. Lippincott Company, 1925, p. 61.
3. Van Leeuwen, W. S.: Allergic Diseases, p. 24.
4. Ancona: Asma epidemico da pediculoides ventricosus, Policlinico (sez. med.), 1922.
5. Kahn, M. H.: Present Status of Curability of Bronchial Asthma, Arch. Int. Med. **39:** 621 (May) 1927.

THE INCIDENCE AND MANAGEMENT OF HYPERTENSION

WITH A NOTE ON SULPHOCYANATE THERAPY *

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WASHINGTON, D. C.

In order to secure a broad view of the problem of hypertension in the community—its epidemiology, in the sense used by Emerson,[1] in contrast with its genesis and course in the individual patient—it is necessary to determine arterial blood pressure in a group of persons who are as nearly as unselected as possible. The data of Theodore Janeway [2] showed the frequency of the association of high blood pressure with various pathologic conditions, and among the important studies which since have developed the knowledge of the incidence of hypertension are those by Alvarez [3] and Diehl and Sutherland [4] on blood pressure in university students; by Faber [5] and Stahl [6] in groups of soldiers; by Aubertin [7] and Wildt [8] in the obese and elderly; by Fisk and Kopf [9] among insurance policyholders; by Boas and Fineberg [10] and by Jones and White [11] in patients with heart disease.

* From the Department of Medicine, Cornell University Medical College.

* Read before the Section on Pharmacology and Therapeutics at the Seventy-Eighth Annual Session of the American Medical Association, Washington, D. C., May 20, 1927.

1. Emerson, Haven; and Larimore, Louise D.: Diabetes Mellitus, Arch. Int. Med. **34:** 585 (Nov.) 1924.
2. Janeway, T. C.: A Clinical Study of Hypertensive Cardiovascular Disease, Arch. Int. Med. **12:** 755 (Dec.) 1913; Bull. Johns Hopkins Hosp. **26:** 341, 1915.
3. Alvarez, W. C., and Zimmermann, Arnold: Blood Pressure in Women as Influenced by the Sexual Organs, Arch. Int. Med. **37:** 597 (May) 1926. Alvarez, W. C.; McCalla, R. L., and Zimmermann, Arnold: Hypertension and Constipation, ibid. **38:** 158 (Aug.) 1926.
4. Diehl, H. S., and Sutherland, K. H.: Systolic Blood Pressure in Young Men, Arch. Int. Med. **36:** 151 (Aug.) 1925.
5. Faber, A.: Acta. med. Scandinav. **61:** 53, 1924.
6. Stahl: Verhandl. d. deutsch. Gesellsch. f. inn. Med., 1923, p. 178.
7. Aubertin, C.: Médecine **4:** 431 (March) 1923.
8. Wildt, quoted by Janeway (footnote 2).
9. Fisk, E. L.; Kopf, E. W., and Dublin, L. I.: Am. J. M. Sc. **170:** 576 (Oct.) 1925.
10. Boas and Fineberg: Am. J. M. Sc. **172:** 648 (Nov.) 1926.
11. Jones and White: Tr. A. Am. Phys. **41:** 7, 1926.

Such observations demonstrate that hypertension of the primary or essential type, as well as that secondary to nephritis and less common conditions, is not rare early in life and becomes increasingly common in the later decades, but it need hardly be pointed out that these groups of individuals are definitely selected, and do not serve to show the actual incidence of hypertension in a general population not yet subdivided by means of various physical or mental criteria.

If a whole community were to be studied in respect to the blood pressure of its inhabitants—as Framingham was studied from the standpoint of tuberculosis—or if a general practitioner could follow the arterial pressures of all his patients over a period of years, the ideal conditions in determining the true incidence of hypertension would be obtained; but under present circumstances, a general medical clinic which attracts a reasonably good sample of a city population offers, within natural limitations, the best available material for the study of blood pressure from this standpoint.

Since its reorganization in 1921, with the establishment of an admission fee, the clinic of Cornell University Medical College has dealt with members of

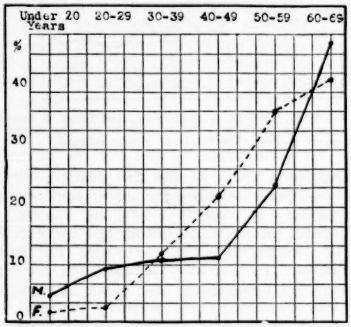

Chart 1.—Incidence of systolic hypertension by sex and age groups.

that great part of the population whose economic level does not necessitate the free clinic and yet often prohibits the expense of thorough diagnostic study and long periods of treatment by private physicians. For the purpose of this study, it may be stated that these patients, representing all the common racial groups and occupations of New York, do not depart greatly from the usual conception of the hard working and much tried "average citizen," with the physical and psychic factors in his, or her, life which play a part in the production of hypertension.

Two thousand patients, equally divided between the sexes, have been studied consecutively as admitted to the department of general medicine. With the exception of the very small proportion (less than 5 per cent) who came directly "for blood pressure," the complaints and symptoms were those of arthritis, the usual gastrointestinal ailments, and the various circulatory, metabolic, respiratory and endocrine disorders.

Blood pressure readings were taken with the patient seated, in a quiet booth, usually after a rest interval of from fifteen to thirty minutes before examination, and the lowest of several readings was recorded, thus avoiding, to a large extent, transient rise of pressure. As the dividing point between high and normal pressure, a systolic level of 140 mm. before the age of 40 years and 150 mm. after, and a diastolic level of 90 mm., were selected. High blood pressure secondary to acute nephritis or clearly defined chronic nephritis have been excluded from this study, which deals, therefore, with primary, essential, or genuine hypertension.

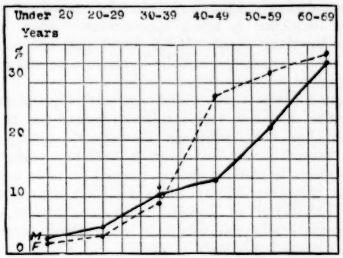

Chart 2.—Incidence of diastolic hypertension by sex and age groups.

In the accompanying table and in charts 1 and 2 are shown, by sex and by decades, the number of patients and the incidence of systolic and diastolic hypertension in each age group. It is not intended to draw too far-reaching conclusions from this series of cases. Obviously, the numbers in the age groups at each end of the series are too small; the age distribution of clinic patients does not, before the fifth decade, parallel that of the general population, nor are there adequate data regarding the proportion of healthy individuals to those chronically ill. These are statistical factors as yet beyond accurate control. Nevertheless, in respect to hypertension, it may again be stated that this material is almost entirely unselected, and that it samples unusually well the middle class of a city population and its prevailing physical defects and functional impairments.

Hypertension in Two Thousand Consecutive Ambulatory Medical Patients

Age.	Men					Women				
	Total Number	Systolic Pressure Above Normal		Diastolic Pressure Above Normal		Total Number	Systolic Pressure Above Normal		Diastolic Pressure Above Normal	
		No.	%	No.	%		No.	%	No.	%
Under 20.	39	2	5.1	1	2.5	56	1	1.8	1	1.8
20–29	239	23	9.6	11	4.6	261	8	3.0	9	3.4
30–39	310	32	10.3	31	10.0	257	30	11.6	23	8.9
40–49	190	21	11.0	25	13.1	207	46	22.2	56	27.0
50–59	133	32	23.9	30	22.5	155	57	36.7	49	31.5
60–69	80	39	48.7	27	33.7	59	25	42.3	21	35.5
Over 70...	9	3	33.3	1	11.1	5	2	40.0	2	40.0
Total..	1,000	152	15.2	126	12.6	1,000	169	16.9	161	16.1

Of first importance is the evidence of the steadily mounting percentage of individuals with high blood pressure as the years go by. Under 20 years, the percentage of 5.1 for men is lower than Alvarez' figures

for university students, and rather higher than those of Diehl and Sutherland. The lower rate of high pressure in young women as compared with men agrees with Alvarez' observations. In the fourth decade, hypertension occurs equally in the sexes. At 40 years, there is a conspicuous rise in the frequency of both systolic and diastolic high pressure in women, and this rise appears to continue during the fifteen or twenty years influenced by the menopause. Hypertension follows more slowly in men, but by the age of 60 years its sex incidence is again approximately equal, and, judged by these standards of blood pressure, nearly every other patient has systolic hypertension, and every third patient diastolic hypertension.

In these patients the association with high pressure of diabetes mellitus, valvular heart disease and thyrotoxicosis has been relatively infrequent. Among the obese, though there has been a tendency toward a higher mean level than among normal or underweight persons, this preponderance has not been entirely uniform. The dictum of Volhard [12] has been recalled, that "the single etiological factor in high blood pressure of which there is no doubt is age."

The importance of hypertension for the individual and as a health problem of the community thus arises from its prevalence and from the sequelae, chiefly cardiac, cerebral and renal, to which it inevitably leads. It is evident that measures for its prevention and relief need their application as early as possible in the life of the individual or in the course of the disorder. A critical period, especially in women, begins with the age of 40 years.

The management of hypertension requires a consideration of the patient as a whole, his constitution, personality and background of heredity and environment.

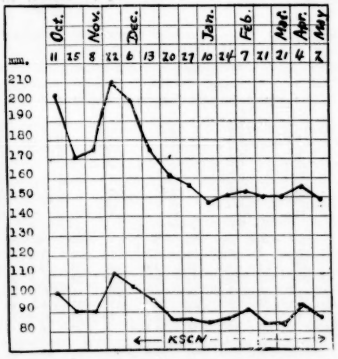

Chart 3.—R. D., aged 53, a housewife, overweight and florid, had pains in the joints and headaches. The heart was slightly enlarged, and a faint trace of albumin was present.

Its details must include possible adjustments in his manner of living, with particular attention to work, recreation and rest; the correction of dietary habits, especially in regard to the excessive use of salt, carbohydrate and protein, and often the insufficient use of water; weight reduction in the obese; the removal of foci of infection, and the symptomatic use of sedatives, of ovarian and thyroid gland, of digitalis and vasodilators, of the saline purgatives, and of many other useful agents which special conditions suggest. It is only necessary to refer to the thorough presentations of the general treatment of high blood pressure by Foster,[13] McLester [14] and Paullin [15] before passing to a brief report of the use of potassium sulphocyanate in patients with essential hypertension.

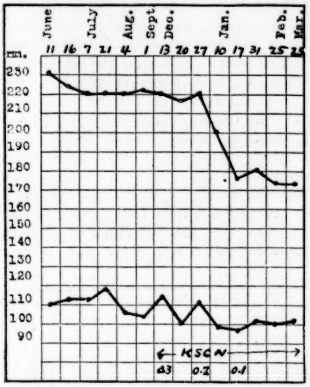

Chart 4.—M. B., aged 61, a scrubwoman, was found to have high blood pressure when vaccinated. Other symptoms were not found, and albumin was not present. The heart was slightly enlarged.

In 1903, in a study of the therapeutic action of various ions, Pauli described the use of sulphocyanate (SCN, rhodan) in place of iodide, and reported its sedative effect on neurotic patients and the excellent results in lowering high blood pressure. The results were confirmed by Pal and Dalmady, but the large doses produced disagreeable side effects and sulphocyanate was abandoned until chosen by Westphal,[16] in 1924, as the agent best adapted for reducing the increased arteriolar tone, which he regarded as chiefly responsible for essential hypertension. It is possible here merely to mention the theory elaborated by Westphal regarding the rôle of cholesterin as the chief of physicochemical factors influencing the smooth muscle cell of the arteriole, and to refer to his extremely interesting experimental and clinical work. It suffices to say that his clinical results, reported in October, 1926, were striking, and are the basis of the present study. At the outset of this work with a rather formidable sounding drug, it was encouraging to find the satisfactory experience recorded by Nichols.[17]

Chemically pure potassium sulphocyanate was prescribed in simple aqueous solution of such strength that 1 fluidrachm (4 cc.) contains 1½ grains (0.1 Gm.) of the salt. This dose was given in water by mouth three times daily, after meals, for the first week, twice daily for the second week, and then once daily for the third week of treatment. Thereafter, this dose

12. Volhard: Verhandl. d. deutsch. Gesellsch. f. inn. Med., 1923, p. 156.

13. Foster, N. B.: Treatment of Hypertension, J. A. M. A. **79**: 1089 (Sept. 30) 1922.

14. McLester, J. S.: Am. J. M. Sc. **172**: 643 (Nov.) 1926.

15. Paullin, J. E.: Ultimate Results of Essential Hypertension, J. A. M. A. **87**: 925 (Sept. 18) 1926.

16. Westphal, K.: Ztschr. f. klin. Med. **101**: 545 et seq., 1925; Deutsches Arch. f. klin. Med. **152**: 331, 1926.

17. Nichols, J. B.: Am. J. M. Sc. **170**: 735 (Nov.) 1925

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was given daily, or every other day. In certain obstinate cases, the schedule of two or three doses a day was maintained for several weeks. Thirty-five patients with essential hypertension have been thus treated in Cornell Clinic, or in private practice, and twenty-five of these have been observed over periods of from two to six months. Many of the group had been observed previously under other forms of treatment for periods varying from six months to several years. During the administration of sulphocyanate, no other drugs were taken, except laxatives when required.

Of the entire number of patients, there have been only three who have entirely resisted the blood pressure reducing effect of sulphocyanate. In twenty of the group of twenty-five patients who have been under observation for several months, there has occurred an individual fall in blood pressure of from 20 to 60 points. There has been less marked but definite lowering of the diastolic pressure. Such common symptoms as headache, nervousness, tingling sensations, a feeling of tension or iritability, dizziness and sleeplessness have been decreased, or even quite relieved, in individual patients. Four patients volunteered statements that they had not felt so well in years. After stopping the drug for two weeks, one woman found that her headaches and dizziness were returning, and her blood pressure was rising toward its former level. In an office worker, aged 39, a member of a conspicuously hypertensive family, there was no significant drop until the sulphocyanate had been taken for four weeks; then the pressure, which had been as high as 190, fell to 140. In a woman, aged 61, who continued to do hard manual labor during the period of treatment, there was a fall in pressure, during the fourth and fifth weeks, from 220 systolic and 112 diastolic to 176 systolic and 98 diastolic. A man, aged 38, an executive with coronary artery disease and mild anginal attacks almost daily, felt better than he had for two years when his systolic pressure fell 40 points, but

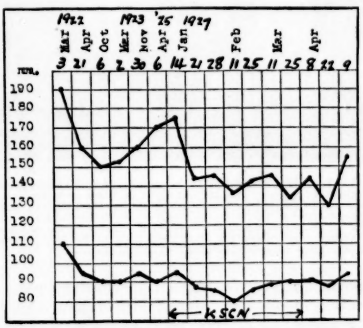

Chart 5.—S. C., aged 52, a housewife, complained chiefly of dizzy spells. The heart was enlarged; the vessels were thickened and there was slight renal injury.

he allowed himself more liberty and had three severe attacks of angina. The question is raised whether this fall in blood pressure helped to induce the attacks. Another business man, aged 50, who had had several anginal attacks a day for four years, became free from his pain three weeks after starting sulphocyanate. He stopped the drug for one week and the angina recurred, one attack one day, and two attacks the next day. He resumed the medicine, and the attacks ceased. A man, aged 50, who had had a recent cerebral hemorrhage, left hemiplegia, blood pressure of 220 systolic and 110 diastolic, in bed on a salt free diet, was given doses of sulphocyanate, up to 1 Gm. a day, over a period of three weeks. There has been no reduction of his hypertension. In two patients, a drug rash appeared similar to that of iodide; and only one patient complained of

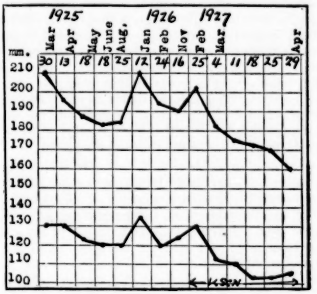

Chart 6.—J. H., aged 37, a manager, complained chiefly of pain under the sternum. He was thin and nervous, and the heart was enlarged but the kidney function was good.

weakness during the first week of treatment. There were no other untoward symptoms in this series of patients. The contraindications to giving sulphocyanate are acute inflammations of all types, nephritis, and marked renal insufficiency; and except for excluding persons with such conditions these patients were unselected.

SUMMARY

In this small series of cases, the results of the use of sulphocyanate have been almost uniformly satisfactory when the patients were cooperative and the physical obstacles to be overcome were not too great. It does not supplant any of the fundamental hygienic and dietary measures for the control of hypertension; indeed, its ultimate action on the smooth muscle cell of the arteriole may not be different from the effect of weight reduction or other metabolic changes, and one method of approach may supplement the other. Just as Westphal's theories suggest many points to be confirmed or further investigated, so the prophylactic and therapeutic use of sulphocyanate in hypertension would seem to deserve further trial.

1614 Rhode Island Avenue.

ABSTRACT OF DISCUSSION

DR. ABRAHAM TRASOFF, Philadelphia: The problem of hypertension has been troubling the medical profession for a long time. Its etiology is still obscure. Probably sometime in the near future we may solve the mystery and effect a reduction of hypertension by proper dieting. Many methods have been suggested. Heparin was used for a time and then discarded. I used it in about two dozen cases and was very enthusiastic at first, but after a trial my enthusiasm faded and I gave it up. I still believe that there is only one method of treatment and that is the salt free diet. In my experience with twelve cases I have seen marked improvement result from this treatment. Rest is an important element, especially when there is evidence of cardiac weakness. Most patients

have it and it gets worse. Another important point is not to tell a patient that he has high blood pressure. That often does harm. Nor must we be overenthusiastic about reducing blood pressure except when reduction is indicated.

DR. NORMAN M. KEITH, Rochester, Minn.: One important point that Dr. Gager emphasized is that he controlled his cases. He mentioned that his controls consist of 1,000 males and 1,000 females, and of the same age incidence. I think that his control series is extremely important. It is worth bringing out that between the ages of 30 and 40, he noticed a marked increase in the number of cases of hypertension. In that connection, Dr. George E. Brown has shown that the capillaries in the nail folds show changes at approximately that period, and also that peripheral vascular disease, such as Buerger's disease, occurs most often at that period of life. It is also of interest that Dr. Wagener and I have shown that malignant hypertension, the type that responds the least to treatment, occurs frequently at this period of life. I should like to suggest to Dr. Gager that he give nitrites in some of these cases and also hot baths, and possibly chloral hydrate to contrast their action with the sulphocyanate.

DR. CARY EGGLESTON, New York: As Dr. Keith has pointed out, Dr. Gager has exercised almost every conceivable element of control over his patients, and he is not expressing an opinion as to the effects of sulphocyanate, but rather the facts in the case. I admit that as a result of my experience with hypertension I am still of an open mind as to just how much benefit is going to be derived in the long run from these moderate to considerable degrees of diminution in blood pressure. It has been my unfortunate experience to find that a considerable number of patients in whom I have been successful in bringing about a slow reduction of blood pressure have suffered a good deal of physical discomfort when the blood pressure has dropped down to a level which was consistent at least with my mental comfort. In other words, many patients with hypertension seemed to get along very much better so far as the symptomatic phases are concerned when the hypertension is present than when it is brought down. This point, however, has also been spoken of in some detail by Dr. Gager, and I hesitate without controlled observations at hand to offer any criticism.

DR. LESLIE T. GAGER, New York: In this paper, no attempt has been made to discuss the nature of hypertension; it reports the treatment of a group of patients with a remedy which, in the hands of the German investigator, has yielded excellent results, and we feel that our work confirms his observations. The value of reducing high blood pressure is, of course, debatable, but it can be said that in a large number of these patients there has been a relief of symptoms, and it is reasonable to suppose that if the patient is going on, for example, with the danger of cerebral hemorrhage threatening, a reduction in pressure may be helpful in eliminating or possibly postponing some of these accidents. If the theory of Westphal is correct, this method of approach is physiologic and rational.

Cooperation Between Legal Profession and the Psychiatrist.—Law and medicine, because they have each been pursuing their own ends independently, have come to talk, as it were, different languages. . . . Each profession has its background and traditions and habits of thought radically different from the other and finally each in its turn comes to talk its own language, which members of the other profession do not understand. There is a sore need for overcoming this difficulty of understanding, but so long as doctor and lawyer meet only as witness and cross-examiner there is little hope. We must get together and work together, and it is on the basis of the recognition of a common purpose that an understanding will come. One important reason for this lack of understanding as between the legal profession and the psychiatrist lies in the fact that law has the traditions of many generations back of it which it has consistently fostered and in accordance with which it has evolved, while the particular department of medicine known as psychiatry, although it is as old as law, in its recent developments is still very young.—White, W. A.: *Am. J. Psychiat.*, November, 1927.

A METHOD FOR MAKING GRAPHIC RECORDS OF NORMAL AND PATHOLOGIC GAITS

DESCRIPTION OF A NEW APPARATUS, THE BASOGRAPH *

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AND
WILLIAM VAETH
ROCHESTER, N. Y.

The study of gait by verbal expression of visual impressions has been difficult, laborious and inaccurate. In 1836, the Weber [1] brothers reported observations by which they established the fact that, in walking, the trunk and the center of gravity sink to a lower level than when the erect position is maintained. They also noted that the sinking increases with the length of the stride. Marey,[2] in 1872, devised a chronographic method for recording the stride of man. His apparatus consisted of special shoes with soles containing a compressible air chamber, connected by rubber tubing to a Marey writing tambour, which was carried in the hands while the subject walked. When each foot touched the ground, a wave of air pressure caused the respective tambour to record an ascending curve on a revolving drum. Marey's method did not give much useful information but it did reveal the length of the time each foot was in contact with the ground. The chronophotographic method was first suggested by the astronomer Janssen in 1878. This method was later successfully applied by Marey, Muybridge, Anschutz, Braune and Fischer. The present development of the moving picture camera makes this method obsolete, but moving pictures are not practical in the clinical studies essential for the most accurate analysis and effective treatment of deforming limps.

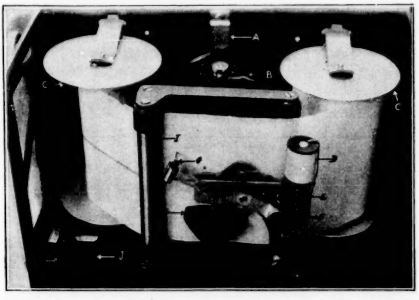

Fig. 1.—Recording mechanism of basograph: *A*, holder for batteries; *B*, batteries with spring; *C*, flanged aluminum cylinders with tracing paper; *D*, celenoid which pulls the base-line pen, *E*, upward each five seconds; *F*, counterweight for capillary graph pen, *G*, which has been elevated to show *E*; *H*, pendulum which is geared to *G*; *I*, one of the two perpendicular rollers which drive the paper from right to left; *J*, T level for leveling apparatus in anteroposterior and lateral planes.

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* Read before the Section on Orthopedic Surgery at the Seventy-Eighth Annual Session of the American Medical Association, Washington, D. C., May 19, 1927.

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2. Marey, M.: Le mouvement, Ann. de. sc. zool. Paris, 1872, translated by Pritchard, 1895.

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There is little information on the normal gait that is helpful in the treatment of disabilities in walking. It was believed, therefore, that a simple method of obtaining a graphic record of gait might not only add to the present knowledge of normal progression but also assist in making a more accurate diagnosis and serve as an index of progress in the treatment of deforming limps. In June, 1926, it was observed that

Fig. 2.—Basograph in position for making a graphic record of gait: *A*, the recording pen is on the base line when the pelvis is level; *B*, recording pen is above base line when the right side of the pelvis is elevated; *C*, recording pen below the base line when the left side of the pelvis is elevated.

the rise and fall of the pelvis and the rhythmic jingle of keys in a pocket were both altered with changes in the character of the step. This observation led to the development of a mechanism that would record such alterations in the movements of the pelvis.

The apparatus consists of two flanged, aluminum cylinders mounted on a base. A roll of paper is wound horizontally at constant speed from right to left. In the center of the base and in front of the paper is a pendulum with a right-angle arm to the left, carrying a capillary pen in contact with the outer surface of the paper. Two belts fasten the apparatus over the sacrum, causing it to move with the pelvis. The independent movement of the pendulum describes a curve on the paper as it travels from right to left. A second pen at the right of the pendulum (fig. 1) serves two functions: it records a base line on which the gait recording pen rests when the pelvis is level, and it also records intervals of time on the base line. The latter function is made possible by a small celenoid (fig. 1) placed above the pen, two search-light batteries, and a clock which closes the circuit every five seconds and causes the celenoid to draw the pen upward to make a vertical mark on the base line.

The paper is pulled from right to left between two rollers (fig. 1) and wound on a cylinder by a slipping spring belt. This prevents changes in the speed of the paper as it winds on the left cylinder. A brake is applied to the right cylinder to keep the paper tight while it is being unwound. The mechanism is driven by a Ciné-Kodak motor which has been altered for this purpose. This, together with the clock, is tightly enclosed in an aluminum case for protection from dust. By means of a knurled knob on the front plate, the governor is adjusted to change the rate of the motor, which can be started and stopped by a small lever below and to the right of this adjustment. The clock is wound by a key on the right end of the case, and the electrical circuit is closed by a switch which is placed above and in front of the key. The lever for winding the motor is placed on the right end of the face plate. On the left end of the base there is a T level (fig. 1) which makes it possible to place the apparatus properly in the horizontal and anterioposterior planes. A point elevated in the center of the sacral plate is placed opposite the midline of the back; this assures that the axis of the pendulum is always in the sagittal plane.

The records which have been made suggest the usefulness of such graphs, although time has not permitted careful analysis and interpretation of the curves. Some of the records of apparently normal individuals are reproduced in figure 3. It will be noted in figure 2 *A* that the graph-recording pen is on the base line when the pelvis is level; it moves above the base line with elevation of the right side of the pelvis (fig. 2 *B*) and falls below the base line when the left side of the pelvis is elevated (fig. 2 *C*). The records of apparently normal subjects have several characteristics in common, although certain peculiarities of individual gait are revealed. Minor abnormalities, such as a painful callus, change the character of the curve, while the limps such as frequently result from infantile paralysis produce very different graphs, which have been repeatedly duplicated.

Graphs of the four common limps resulting from impairment of function in the gluteus medius, gluteus maximus, both of these muscles combined, and the quadriceps have been arranged in figure 4. It should be observed that a limp on the right side always throws the curve essentially below the base line, while the maximum curve is above the line when the limp is on the left side. Moreover, there is a marked difference in

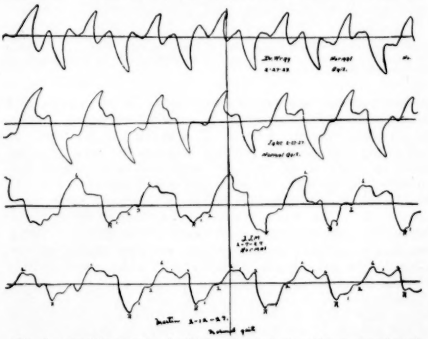

Fig. 3.—Graphic records of subjects who had no evidence of pathologic gait in walking.

the contour of the curve by these various limps. The intervals of space between elevations in the base line represent five seconds.

CONCLUSIONS

1. A more accurate knowledge of normal and pathologic gait is essential for the better treatment of deforming limps.

2. The use of the basograph makes it possible to record deforming limps for comparison with the records of the gaits of supposedly normal persons.

3. Such records may be used for the study of the "normal," and as an index of progress in the treatment of pathologic gait.

Crittenden Boulevard.

ABSTRACT OF DISCUSSION

DR. H. W. ORR, Lincoln, Neb.: Dr. Schwartz has presented an interesting and apparently a very valuable instrument. There can be no question that it can be used to work out certain records and certain data with regard to normal and pathologic gaits that will be of value. However, I am reminded of a personal experience. About fifteen years ago, I worked out a spinal brace for the treatment of scoliosis that I still think has some of the best points of any spinal brace I ever saw, but the brace was too heavy for the patients to wear and cost too much for the patients to buy. Consequently, I never have heard of any one but myself ever using it. However, the mere working out of the brace did me and my patients a great deal of good. I think we can say that the working out of this apparatus has made Dr. Schwartz a better orthopedic surgeon, because of the time and the work which he has given to it, and he is to be congratulated for this contribution to our scientific and possibly also our clinical armamentarium.

DR. E. G. BRACKETT, Boston: This mechanism is both accurate and ingenious. I think, however, that it brings up a lesson which is valuable and interesting, by placing into

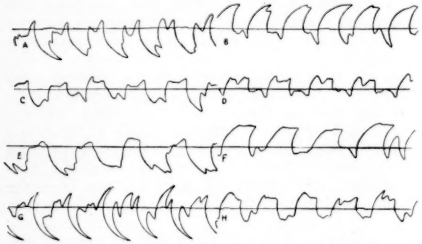

Fig. 4.—Graphic records of imitated limps, such as frequently result from infantile paralysis: *A*, right, *B*, left, gluteus medius; *C*, right, *D*, left, gluteus maximus; *E*, right, *F*, left, gluteus medius and maximus; *G*, right, *H*, left, quadriceps.

prominence the importance of a factor in diagnosis, and sometimes in treatment, which is too much neglected. I refer to the study of gait. I believe that in the past we have not sufficiently studied gait, possibly because we have been led aside by some of the more scientific and more spectacular subjects. Many times we know that a gait has been a deciding factor in the diagnosis in many cases of early joint disease, as, for instance, between a low lumbar spine and a hip disease, or even between a hip and a knee disease. There are many varieties of gait which we may study, as, for example, the difference between the gaits which are the result of some disease of the hip, knee or foot, each of which is characterized by a peculiar kind of step. In this way, this factor may be the important element in deciding the location of the trouble if we understand the special characteristics. Again, in such muscular conditions as the milder forms of infantile and spastic paralysis, in which the symptoms are not marked, and the involvement of the muscles is slight, the character of the gait—particularly in younger children—sometimes becomes very important, and one of the deciding factors of the diagnosis. Another advantage of this mechanism is that it gives us a means not only of studying, but of recording the gait, and the record may be used during the course of a disease. Further, it allows a means of teaching, by analysis, the various types of gait, both normal and abnormal. Therefore, I believe that Dr. Schwartz' study has much more of value than appears on the surface, and is well worth while.

DR. CHARLTON WALLACE, New York: The demonstration of the mechanical device for studying normal gait was greatly appreciated. To me, it is not thoroughly understandable, but it may be of use in studying the human gait if the physiology and anatomy of normal walking are thoroughly understood. One might venture to criticize the practice of depending on a mechanical apparatus instead of using the natural powers of observation. That is to say, the schools that teach medicine and surgery today are turning out clinicians who are not properly trained to use their senses, but who are too much inclined to depend on an instrument to make a diagnosis. It is doubtful whether the orthopedists need an instrument of this type to tell whether or not a man is walking normally. I do not believe that an instrument should be depended on to distinguish between a foot limp, knee limp or hip limp. It is more our duty, especially for those who are teaching, to train the medical student to observe with his eyes and to study the normal gait and attitude without the use of apparatus. When orthopedic surgeons have to resort to a machine or anything of that sort to know whether or not there is a limp, I think that we are getting pretty weak in utilizing all our senses. God has given us these and we should use them. This is a very complicated machine and is only in its infancy, and I certainly hope that the painstaking work which Dr. Schwartz has done will be continued and carried on until the final product has been achieved. However, one is warranted in using any means obtainable to study gradation and degrees of limp. It is hoped that this machine will do this for us.

DR. ALBERT H. FREIBERG, Cincinnati: I wish to add a word of praise to Dr. Schwartz for his ingenious apparatus and the vision that goes with it. I do not think that we need an instrument to tell whether a patient is limping, and I am quite sure that Dr. Schwartz does not think so either, any more than we need to have an instrument to tell whether a man has a hunchback or not. However, we do need a precise means for studying the fine variations in the limps which are caused by very different conditions and which may produce such disturbance in the rhythm of the gait that we cannot accurately perceive it with our unaided senses. I think that Dr. Schwartz is only at the beginning of an interesting study. It would be most illuminating and instructive, for example, in a case in which we have endeavored by some plastic means to make a substitute for a paralyzed gluteus medius, to tell afterward just to what extent and in what way we have succeeded. That is something which we cannot measure with the unaided eye. Dr. Schwartz has designed an instrument by which we shall be able to do that, and for my part I can see a great range of possibility in learning, with regard to both the normal gait and the abnormal gait, the extent to which we have been able to influence it by treatment. I congratulate Dr. Schwartz on what he has done.

DR. EDWIN W. RYERSON, Chicago: It is of great importance to have a record of improvement or of retrogression in our cases. The cardiograph is an extremely useful instrument, and so is the sphygmograph. If we can record the progress in cases of infantile paralysis, if in no other cases, we shall have made a considerable advance. It will mean much to us if we can take the graph produced by Dr. Schwartz' machine and record from week to week or month to month the progress that has been made. Such a record will be a most valuable asset. I congratulate him for a piece of good, scientific work which I hope will be emulated by other men in other lines of work.

DR. R. PLATO SCHWARTZ, Rochester, N. Y.: In reply to Dr. Wallace, I am sure that we would all hesitate to be without instruments of precision to enable us to guide the progress of our patients. It is not impossible to tell that an individual has a fracture, but still we would hardly do without the roentgenogram to determine the nature of that fracture and the progress made in its treatment. The determination of progress in the treatment of gait is still more difficult. The desire of the patient to be well, the desire of the surgeon to have him well, and the sincere anxiety of the parents and their interest in that patient, all lead us to feel that the methods instituted to remove the deformity have been successful. How far they have been successful is at the present time largely a matter of guesswork. We do not know what normal gait is. I have avoided the expression "normal gait" because it

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is not defined. Whether it will ever be possible to make such a definition I do not know. However, we do have evidence that it is possible to get records which have characteristics in common from individuals who do not have evidence of disease but still have individual differences in those records. The records of imitated limps, those of patients with sacroiliac disease and lesions of the back, together with records of patients who have had braces applied to the lower extremities, have all revealed different characteristics in the respective curves. The points which Dr. Freiberg and Dr. Ryerson have bought out have justified the work in this direction, namely, that we may be able to learn more about gait and follow out more scientifically the progress of our patients: in other words, to record something more than a mere opinion concerning it.

UNUSUAL BONE CHANGES CAUSED BY A SMALL PRIMARY BRONCHIOGENIC CARCINOMA*

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EDWIN F. HIRSCH, M.D.
AND
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CHICAGO

Among the disorders of bones difficult to diagnose clinically are those caused by metastases from a relatively small carcinoma of some parenchymatous tissue, such as the prostate or the lungs. Others [1] have commented on this, and with practically all the patients the primary carcinoma itself has been a silent focus so far as arousing clinical symptoms is concerned. The symptoms associated with the bone changes are especially impressive to the attending physician, because, in his efforts to determine the disorder present, advice is sought from others, and every examination is made which might possibly be helpful in reaching a correct diagnosis.

The purpose of the present report is to place on record an account of unusual changes of the bones

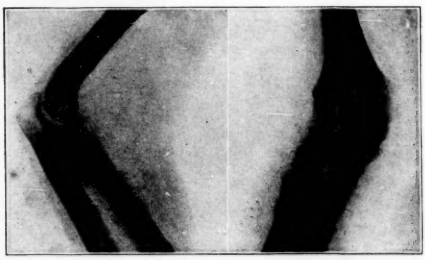

Fig. 1.—Anteroposterior and lateral views of right elbow and neighboring regions, April 13, 1925, showing extensive periosteal hyperplasia of radius, ulna and humerus, most marked on the radius. Erosion of outer diameters of shaft of the radius and extraordinary transparency of this bone.

caused by metastases of a small primary bronchiogenic carcinoma in a patient whose clinical symptoms throughout were associated with the alterations of the bones, and in whom the primary carcinoma was not found until an examination of the lungs had been completed some time after the postmortem examination. Usually, the clinical symptoms of a bronchiogenic carcinoma are caused by the growth of the tumor tissue within the lung substance, and those due to metastases are relatively insignificant except when the secondary growth is in some vital structure, such as the brain.

Fig. 2.—Extension of the process, June 15, 1925. Periosteal involvement now in upper part of humerus. Partial resection in middle of shafts of radius and ulna, for diagnostic purposes.

However, metastases in some other tissues occur frequently with bronchiogenic carcinomas. Seyfarth's [2] review of 307 carcinomas of the lungs includes the statement that with 75 per cent there were metastases in some other tissues, most often in the regional lymph nodes, but also in the pleurae, and commonly in the brain. Metastases in bones, he says, occur often, but chiefly in the ribs, sternum and vertebrae, and rarely in other osseous tissues. Grove and Kramer [3] report bone metastases in eight of twenty-one primary carcinomas of the lungs and state that Adler noted metastases in forty-seven of 374.

Many of the bronchiogenic carcinomas that produce metastases in remote regions of the body have considerable dimension. When the primary tumor is small and a metastatic carcinoma is found in the skeletal tissues, a careful physical examination is not likely to demonstrate the primary carcinoma. The smallest bronchiogenic carcinomas of the lungs, according to Seyfarth, are soft, warty thickenings of the mucosa which grow like a polyp and constrict the lumen. The minuteness in size is mentioned also in Kikuth's [4] report of 246 primary bronchial and lung carcinomas. These, he says, may be irregular, rough thickenings of the bronchial lining, or extremely small, scarcely elevated regions having a surface dimension of 3 sq. mm., but involving the entire bronchial wall. With some there

* From the Orthopedic Service B and the Henry Baird Favill Laboratory, St. Luke's Hospital, and the National Pathological Laboratory.
* Read before the Section on Radiology at the Seventy-Eighth Annual Session of the American Medical Association, Washington, D. C., May 18, 1927.

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3. Grove, J. S., and Kramer, S. E.: Am. J. M. Sc. **171**: 250-282 (Feb.) 1926.

4. Kikuth, W.: Virchows Arch. f. path. Anat. **255**: 107-128, 1925.

is a marked infiltration of the lymphatics such that the entire lung, especially one lobe, is studded with innumerable submiliary nodules, and is roughened by many small white masses.

The bone metastases with small carcinomas of the lungs give rise to changes difficult to diagnose clinically. In the nature of such changes are those reported as

Fig. 3.—Enormous hypertrophy of periosteum of all the long bones of the right upper extremity, including the digits, Sept. 21, 1925. All the epiphyseal structures of the limb show extraordinary loss of calcium. Operative resection of upper portions of radius and ulna.

pulmonary osteo-arthropathy (Marie). Under this descriptive title are accounts of lung metastases of malignant tumors with skeletal changes, especially of the periosteum. However, there are relatively few reports mentioning such bone changes with a primary carcinoma of the lungs. Thompson,[5] in 1904, a few years after Marie's description, noted this disorder in a patient with carcinoma of the left lung. The cartilages of the left femur, tibia, and patella were irregularly eroded. Thompson and others include a report by Ewald[6] among these. Ewald's statements regarding a patient having enlarged hands and feet and a disseminated miliary carcinoma of the left lung, however, were made in his discussion of Virchow's address on acromegaly.

Locke[7] mentions a patient having periostitis ossificans, a right bronchiogenic carcinoma, and metastases in the right femur and viscera. He demonstrated tumor tissue in the periosteum of the right femur. Stechelmacher[8] records similar changes with a carcinoma of the left lung (upper lobe) producing metastases in the right humerus, left fibula and tibia, calvarium and viscera. Weinberger[9] observed osteo-arthropathy, especially of the bones of the extremities, in a patient with carcinoma of the left lung (upper lobe). According to Weinberger, E. Frankel has examined a large number of malignant tumors of the lungs in bodies in which the skeleton also was studied, but only once was a generalized periostitis ossificans observed with a bronchiogenic carcinoma. Braun,[10] he states further, mentions clubbed fingers in a case of carcinoma of the bronchus in which the ribs contained metastases. A roentgen-ray examination of the hands, however, did not demonstrate any bone changes. Commenting on the occurrence of bone metastases in four of ten patients wth lung carcinoma whom he studied, Fried[11] says that the bones apparently are involved more frequently than is generally recognized. A recent article by Brunn[12] contains a report of carcinoma of the left lung with marked osteo-arthropathy of the fingers and toes. Pain in the legs and feet was a prominent clinical symptom. Brunn found only four other reported instances of osteo-arthropathy associated with carcinoma of the lungs. Grove and Kramer[3] noted osteo-arthropathy in one of the twenty-four patients with carcinomas of the lungs that they studied.

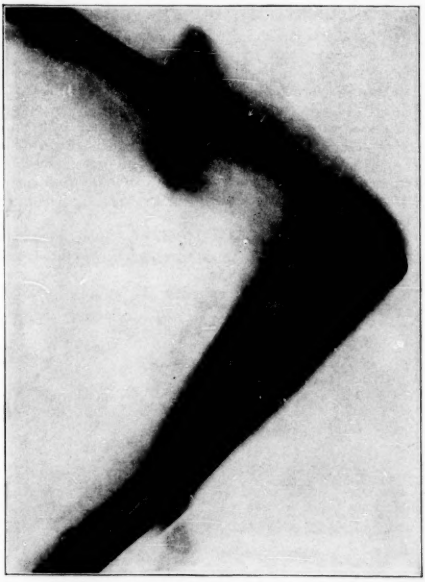

Fig. 4.—Lateral projection of left arm, elbow and forearm, Nov. 10, 1925: diffuse periosteal hyperplasia and periosteal separation from bone entire length of limb.

These statements indicate that metastases in bones with bronchiogenic carcinoma are common. The

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7. Locke, E. A.: Secondary Hypertrophic Ostes-Arthropathy and Its Relation to Simple Club-Fingers, Arch. Int. Med. **15:** 659-713 (May) 1915.
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11. Fried, B. M.: Primary Carcinoma of the Lungs, Arch. Int. Med. **35:** 1-41 (Jan.) 1925.
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changes resulting are a bone destruction, such as occurs with carcinoma metastases generally, or curious proliferations of bone tissue along the periosteum, an osteoperiostitis. There is some doubt whether the periosteal changes are due altogether to actual metastases into the periosteum, as observed by Locke,[7] or are bone alterations secondary to lung disorders of the Marie type, the actual relationship of which is not known.

REPORT OF CASE

I. G., a Jew, aged 38, married, a tailor, was admitted to the orthopedic service (H. B. T.) of St. Luke's Hospital, May 5, 1925, complaining of pain and immobility of the right elbow. There was nothing significant in his previous and family histories. The pain began about a year before, and in February, 1925, an operation (by another surgeon) was performed on the elbow, together with a fascial transplant about the ulnar nerve. The operation did not afford any relief. The elbow, at the time of admission, was swollen and indurated, and the hand and fingers also were swollen. After roentgen-ray examination the bone disorder was considered to be an osteomyelitis, and an operation was advised. This was done, June 1, and through a dorsal incision the upper thirds of the ulna and the radius were opened with an electric drill. Both bones were enlarged, and the bone tissue was sclerotic, changes that suggested syphilis. The wound healed promptly. Microscopically, the tissues removed contained regions of chronic inflammation, and a fibrous tissue replacement of the fat in the marrow spaces. Cultures of the fluid removed were sterile, and bacteria were not demonstrated in cultures of the blood. The Wassermann tests of the blood and spinal fluid were negative. The red blood cells were 5,700,000; the leukocytes 8,000 per cubic millimeter, and the hemoglobin, 90 per cent. The patient left the hospital, June 13, considerably improved. July 7, he returned with an incompletely ankylosed, swollen, tender and apparently inflamed elbow, but he was not acutely ill. The temperature, pulse and respiration were normal. The treatment consisted of rest, mercuric cyanide injections, hot saline immersions, and routine sedatives for extreme unrest.

Another operation was performed, August 12, the proximal ends of the radius and ulna being removed, the wound drained, and a thin plaster cast applied. The ends of both bones were eroded, and microscopic preparations showed a chronic inflammation. The wound healed, and the condition of the arm remained satisfactory during September; but by October 14 the entire arm was swollen again and exceedingly painful. There were palpable lymph nodes in the axilla, and five days later the arm was blue and edematous. October 23, the arm was amputated at the junction of the upper and middle thirds. The patient recovered promptly but complained of an intermittent pain in the left elbow. The Wassermann test of the blood again was negative, and the clinical diagnosis made when the patient was discharged was "amputation of the right arm because of a chronic periostitis of the right radius and ulna." In some of the tissues of the arm taken from just below the elbow joint, masses of epithelium were found (Drs. E. R. Le Count and E. F. Hirsch), and a diagnosis of metastatic carcinoma was made. Careful physical examination following this report was unsuccessful in demonstrating a primary tumor. The patient reentered the hospital, December 1, complaining of pain in the back and sides which had been present for about three weeks, and also of pain in the chest, wrists, knees and ankles. The knees, ankles and hands were hypertrophied, rather than edematous, and the skin was dry like parchment. The pain in the chest was particularly severe on deep inspiration. There was slight tenderness on pressure in the left sixth, seventh and eighth interspaces near the spine, and some dulness over the bases of both lungs; a few, dry, crackling râles were heard along the lung margins. The examination of the heart was negative, and nothing unusual was found in the abdomen. Noteworthy results were not obtained from cultures of the blood or from examination of the feces and urine. The basal metabolic rate was 32.

The severe pains in the chest continued, and on December 23 the patient developed signs of a bilateral hypostatic pneumonia; the temperature was 101.6, the pulse, 120, and the respiration, 44. He weakened rapidly, and died suddenly, Jan. 1, 1926.

As the changes in the bones were especially interesting, the results of the roentgen-ray examinations are recorded fully. In the first films of the right elbow, taken April 23, 1925, there is (fig. 1) a marked but irregular hyperplasia of the periosteal tissues along the shaft of the radius; the surface is eroded; the underlying cortical bone tissue is invaded, and there are regions of diminished bone density in the cortex. The medullary canal walls are less definite in outline than is normal, a change which suggests some inflammation of the medullary canal. The alterations in the upper part of the ulna differ from those in the lower portion in that the periosteum is lifted away from the shaft as by a fluid or an exudate. The periosteum here is only slightly thickened. The bone tissues beneath have normal density shadows.

Fig. 5.—Same periosteal changes of bones of legs and foot, Nov. 10, 1925.

There are no changes in the articular surfaces of any of the bones of the elbow. The periosteum of the lower end of the humerus is greatly thickened, much like the radius but without the deeper bone changes.

After six weeks (May 26), the bone changes observed previously were much more marked and extended farther along the shafts of the bones, those of the ulna being like the radius, and the humerus was involved up to the middle third. The bone changes in the films made June 15 (fig. 2) and July 20 differed only in degree from the preceding: the changes had increased and were limited almost entirely to the periosteum.

At the time of the next examination, September 21, there was (fig. 3) a marked periosteal bone thickening of the humerus, radius and ulna, only the joint surfaces being spared. There were similar changes of the metacarpal bones and phalanges but the short bones were not involved. The epiphyses of the long bones and the carpal bones had a diminished bone density, the degree of which was hardly greater than that cast by the surrounding soft tissues. The

cancellous bone structure was very coarse instead of presenting the normal fine, sharp arrangement of bone architecture. Films of the chest made about this time did not demonstrate any changes in the clavicles, ribs, spine, lungs, pleurae and heart.

Films made November 20 (fig. 4), a short time after the right arm had been amputated, demonstrated a periosteal hyperplasia of the humerus stump and similar changes of

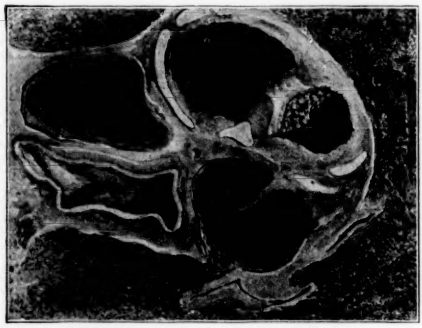

Fig. 6.—Small bronchial carcinoma of left lung.

the clavicles and the edges of the scapulae, the left arm, forearm (fig. 5), and also of the wrist, hand and fingers. These periosteal changes were like those of the so-called chronic pulmonary osteo-arthropathy, but clubbing of the fingers, a common feature in this condition, was not present. However, the roentgen-ray features were sufficiently characteristic of this condition to suggest a causal lesion somewhere in the respiratory tract. The lower extremities also showed a periosteal hyperplasia like that in the upper extremities (fig. 6). The ribs, vertebrae, pelvic bones, sacrum, coccyx and skull, however, were unchanged, an uncommon condition according to the usual descriptions. There was no roentgen-ray evidence of a lesion in any part of the gastro-intestinal tract.

The last roentgen-ray examination of the chest was made, December 4, and in these films (fig. 7) the hyperplasia of the periosteum of the clavicles was more extensive than was previously found but the lung fields were within the normal variations, there being no tumor shadows in the hilum or neighboring regions of the bronchi. The heart and aorta shadows were normal.

After the postmortem examination, the films were restudied for a shadow of the lesion found in the left bronchus but the tumor was so small and lay so close to the mediastinum that it did not cast a shadow.

The postmortem examination of the head, neck and trunk was made, Jan. 2, 1926. The essential changes were confined to the tissues of the chest, and to the bones of the extremities.

The right pleural cavity contained about 1 liter of a yellow, turbid fluid, the left slightly less. The lungs were adherent in different places to the parietal pleura. The lining of the thoracic duct was smooth and white, and the diameter about 3 mm. The lining of the trachea and main bronchi was reddened and covered with a viscid, yellow secretion. The lymph nodes at the bifurcation of the trachea were firm, black and markedly shrunken and contained a little white fibrous tissue. The periaortic lymph nodes down to the receptaculum chyli also were small and firm with fibrous tissue. The right lung weighed 560 Gm. The parietal and visceral pleura were roughened behind by irregular tags of fibrous tissue and were studded with many flat, slightly raised, gray-white masses, round and irregular in contour, and from 1 mm. to 1 cm. in their maximum surface dimensions. The lung substance in all parts was crepitant. The left lung weighed 500 Gm. The parietal and visceral pleura contained many gray masses like those on the right side. The lower lobe and lower half of the upper lobe were not crepitant. No large tumor masses were present on the surfaces made by a single cut through the hilum toward the periphery of each lung.

After fixation in a solution of formaldehyde, the lungs were sectioned in parallel horizontal planes 1 cm. apart, the essential change being in the left. The left bronchus at the hilum divided abruptly into a large branch to the lower lobe and another to the upper. The branch to the lower lobe again divided 1 cm. from the first bifurcation into two branches, one with a large lumen (8 mm.) toward the medial side, the other with a smaller lumen (5 mm.) toward the periphery (fig. 8). There was a thickening (4 mm.) of the wall of the smaller as compared with the one (2 mm.) having the larger lumen. Beyond this bifurcation, the branches of the bronchus with the narrow lumen were filled with coagulated mucus. The thickness of the mucosa 1 cm. beyond the bifurcation was 5 mm.; the surface was finely granular and warty as compared with the mucosa of the other bronchus, the lining of which was thrown into small parallel longitudinal folds. The lung tissue supplied by the constricted bronchus was leathery and contained very little air. The pericardial sac contained the usual amount of yellow fluid. The pericardial surfaces everywhere were smooth, moist and glistening. The usual routine examination of the heart demonstrated only slight fibrous changes of the leaflets. The stomach, bowel, pancreas, prostate, testes, seminal vesicles, liver, vasa deferentia, bile ducts, suprarenals, esophagus, kidneys, peritoneum, thyroid gland, gall and urinary bladders, parathyroid glands, and hypophysis did not contain any tumor. The outside of both clavicles was irregularly roughened and eroded, the right more than the left. The sub-

Fig. 7.—Section of bronchial wall tumor.

periosteal bone tissues of the left tibia also were roughened and thickened.

Sections of the bronchial wall tumor (fig. 9) contained epithelial cells infiltrating the entire mucosa and markedly invading the regional lymph channels. The tumor cells were relatively large and had a pink stained cytoplasm (hematoxylin and eosin stain) and a darkly stained nucleus. In

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both lungs, the infiltration of these tumor cells was along the lymph channels. The carcinoma cells in the pleura were associated with dense masses of fibrous tissue, and in the lymph nodes with metastases there were fibrous changes, so that these tissues were markedly scarred and shrunken. The thickenings along the shaft of the left tibia were cortical bone tissue, and careful search in sections from different blocks did not demonstrate carcinoma tissue.

COMMENT

Clinically, the diagnosis of bone lesions is usually easy, but there are some patients in whom even the most careful roentgen-ray and laboratory examinations do not furnish the information necessary for making the correct diagnosis. The demonstration of carcinoma in the tissues removed from this patient during the first and second operations (by H. B. T.) may have failed because tissues from enough places were not examined or because tissue containing tumor was not submitted for examination. At any rate, the need for careful histologic examination of adequate material is demonstrated, and the result of a tissue examination must be weighed accordingly, and not necessarily considered as final even though the study is thorough. At first, the periostitis and osteitis about the proximal portions of the ulna and radius was thought clinically to be an osteo-arthritis; later the clinical progress and the roentgen-ray films suggested an osteomyelitis, but this was not demonstrated surgically. The sclerosing, nonsuppurating osteomyelitis of Marie was considered but dismissed, as was also syphilitic periostitis. The changes of the bones noted early in the roentgen-ray films are like a hypertrophic pulmonary osteo-arthropathy, but careful examinations of the lungs failed to demonstrate changes sufficient to justify this diagnosis.

Following the examination of tissues taken from the amputated arm in which a metastatic carcinoma was found, a careful examination of the lungs, thyroid, prostate, pituitary gland, stomach, bowel and other organs failed to demonstrate a primary tumor. Confusion was added when sections of the tumor tissue were submitted to other pathologists, several of whom diagnosed the condition as so-called primary endothelioma of the bone. All these statements emphasize the need of careful painstaking examinations in determining the nature of certain changes of the bones, and in not a few patients the correct diagnosis can be established only by a thorough and careful postmortem examination.

ABSTRACT OF DISCUSSION

DR. A. L. GRAY, Richmond, Va.: One must be constantly on the lookout for just such obscure cases. Any roentgenologist of experience can cite cases that have occurred in his practice, in which a metastatic bone involvement was the first thing to suggest the presence of a malignant condition, the primary lesion having produced no sign or symptom that in any way indicated its presence. In our experience, an obstinate inguinal lymph node enlargement persisted despite faithful roentgen-ray treatments. One of the nodes was removed, and the pathologist pronounced it a carcinomatous metastasis. We had been unable to find any lesion of any consequence. The pathologist told us to look for it. We did, and found an insignificant little ulcer on the outer side of the foot. A woman was treated for a long time for rheumatism of the left hip. Roentgen-ray examination revealed very extensive erosions of the entire pelvis. The ischiopubic ramus was practically severed. On further inquiry into the history, we found that she had had a small nodule in the right breast for a long time. On discovering it, she had consulted several physicians who had advised her that it was of no significance whatever and to forget it. Another woman was brought in for fracture of the femur just below the hip. We found very extensive metastasis. No primary malignant condition had been suspected. Careful examination at the time failed to give us any clue. She was later found to have a pelvic carcinoma, from which she died a short time after. I am satisfied that in the case which the authors presented, the element of pulmonary osteo-arthropathy was present. I want to congratulate the authors on their postmortem report. It is one of the most complete that I have seen, and they have added a great deal to our information on this subject. The paper tends to inspire us to study our films more carefully, and, if possible, to get a pathologic report when a section can be obtained.

DR. LEON T. LEWALD, New York: A case of lung tumor being studied at the present time at the New York University clinic resembles in some respects some cases reported by Dr. Hickey of a very dense, scallop-bordered tumor described as chondroma. We thought that possibly this might belong to that variety of lung tumor, and I should like very much to have an expression of opinion. The patient may be subjected to an exploratory thoracotomy. He is 54 years of age, and has considerable pain in the chest. He does not look cachectic, but he has this very large dense tumor involving the right side of the chest. Dr. Hickey called attention to a chondroma which had a scalloped border and also had areas of density due to lime salt deposits or bone formation. In my case there is no bone formation.

DR. H. K. PANCOAST, Philadelphia: The slides exhibited by the authors suggest two conditions—chronic hypertrophic pulmonary osteo-arthropathy and a malignant process. Certainly, the appearances in the opposite arm and in the lower extremities resemble the former condition, but in the affected arm they resemble a malignant growth. Chronic hypertrophic pulmonary osteo-arthropathy is said to be associated with primary tumors of the lung. It may be that some of the primary lung tumors produce also the appearance found by the authors in their case, and we have overlooked them or have not looked for them. It is possible that this case is not as unique as our limited knowledge makes it appear to be.

DR. E. S. BLAINE, Chicago: Our purpose in presenting this case was to call attention to the interesting details, among which is that to which Dr. Pancoast has referred, namely, the two different periosteal manifestations. The periosteal alteration at the site of the initial or original lesion, above and below the elbow joint, differs entirely from that which developed in the opposite arm, forearm and fingers as well as in the lower extremities. The appearance of such a multiple periosteal hyperplasia causes one to look immediately for other common features of an osteopulmonary arthropathy such as the clubbed fingers; not finding the enlarged finger tips, one wonders whether or not there is a causal lesion in the respiratory tract. The postmortem observations proved that this surmise was a correct one. We hoped to stimulate the interest of those present who may have had similar roentgen-ray results in trying to solve this point: Are there two different lesions here or have we any roentgenographic diagnostic sign that is really more valuable than we have heretofore regarded as reliable?

Glycogen Releases Mechanical Energy.—Glycogen is one of the stored materials of the muscle, a compound of carbon, hydrogen and oxygen; and muscular tissue has the power of forming this glycogen from the sugar of dextrose brought to it by the blood. Dextrose is the form of sugar in which our carbohydrate foods (starches, sugars, etc., the bulk of our usual diet) are eventually absorbed into the blood and carried by the blood to the muscular tissues, there to be transformed into glycogen. The stored glycogen of the muscles keeps uniting chemically with the oxygen of the blood. The glycogen is broken down into a simpler chemical form, giving off the gas carbon dioxide and other acid wastes, and releasing heat and mechanical energy in the process.—Goldmark: Fatigue and Efficiency, pp. 21-22.

A STUDY OF TATTOOING AND METHODS OF ITS REMOVAL*

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Tattooing is the art of introducing coloring matters into the skin by means of which certain colorations or designs are made more or less indelible. It has been practiced since the most primitive times and has been found in every quarter of the globe. From passages in the earliest writings and from notes made by early explorers, we know that it existed in some form among the earliest peoples, and more recent explorers found it used by the natives of North and South America as far as the polar regions. It has been found on Egyptian mummies, and in the Bible Moses warned the Jews against its use. The highest form of the art was reached in the islands of the South Pacific and in Japan.

Fig. 6.—Tattooed arms before removal of marks.

METHODS OF TATTOOING

Among primitive peoples the tattooer is held in high esteem, for he is a true artist. He occupies an exalted position in the social scale, and his art is handed down from father to son. Among modern races, however, the tattooer has lost caste and his art has deteriorated. The most primitive method of tattooing is by incising or burning the skin and rubbing various coloring matters, usually carbon, into the wounds. The next refinement is the use of bodkins, chisels, made of bone or steel, and mallets. Specimens of these have been found in the most ancient tombs of Egypt. The little chisels, usually in the shape of a hoe, are dipped into the pigment and then driven into the skin by a sharp tap with a mallet. This method is still employed in primitive communities such as Samoa. The next step was the use of needles, and this method has been used for hundreds of years practically unchanged, except for the recent introduction of the electric needle.

POSTOPERATIVE EFFECTS AND AFTER-CARE

Prior to the advent of the electric needle, tattooing was a painful operation. Among primitive people it was often customary to restrain the patient forcibly and to continue the operation for from three to six hours, at the end of which time the patient was often more dead than alive. The succeeding few weeks were likewise very trying, and to protect the patient the natives of Oceania surrounded him with a very strict religious tabu. Complete rest, a careful diet, solitude, and the avoidance of every physical indulgence were enjoined. The first effect of the operation is a lively irritation of the skin with swelling, heat and moderate redness, together with a moderate serosanguineous discharge. A crust forms and the design is difficult to distinguish, the region presenting a grayish tint. After a period of from six to fifteen days the inflammation subsides, the crust drops off and the designs gradually become clear. During this period it was, and in some districts still is, the custom to apply fresh water, saliva, salt water, urine or tobacco juice to the tattooed area in the belief that it hastened resolution of the symptoms. Since the electric needles have come into use, however, even extensive designs can be applied in a short time with very little pain, and the postoperative course is somewhat shortened and ameliorated.

PATHOLOGY

The pathologic changes are in large measure dependent on the method used and the precautions employed to prevent infection during and after the operation. Formerly, it was not uncommon to encounter serious complications. Bercheron,[2] in 1862, reported forty-three cases in which eight deaths occurred as a direct consequence of tattooing; in eight others, an amputation was necessary; in seven, gangrene had set in; in twenty-five others there was marked inflammation and infection, and in one an arteriovenous aneurysm. Lymphadenitis is common, tetanus has been reported in several cases, and in several instances leprosy and tuberculosis of the skin have been encountered. Of course, there have been a great number of cases of syphilis reported; so many that in some districts the presence of a tattoo is taken as synonymous with a positive Wassermann reaction. An instance reported by LaCassagne[3] tells of nine patients infected with syphilis in one day by a tattooer in the secondary stage with mucous patches in the mouth. This operator moistened the needles with his saliva and tattooed the spirochetes directly into the skin. In such cases, multiple primary lesions are often noted.

Unfortunate complications of tattooing do not commonly occur today if the operation is done by a modern professional tattooer. Such operators usually shave the area to be tattooed, and cleanse it with soap and water and sometimes alcohol. Their needles are usually sterilized, and their colors more carefully mixed. By such men the use of saliva, urine and tobacco juice as a postoperative dressing has also been largely abandoned, and only cold water or a simple emollient is used. Even with them, however, infections are not rare, and when they occur they are usually treated with a proprietary zinc oxide ointment, the use of which is advised by some instructors in the "art of tattooing." Much tattooing, however, is still done by wandering

* Because of lack of space, this article is abbreviated in THE JOURNAL. The complete article appears in the Transactions of the Section and in the author's reprints.

* Read before the Section on Dermatology and Syphilology at the Seventy-Eighth Annual Session of the American Medical Association, Washington, D. C., May 20, 1927.

* From the U. S. Public Health Service (Marine Hospital number 6) and from the Department of Dermatology and Syphilology of Western Reserve University School of Medicine.

2. Bercheron, E.: Histoire médicale du tatouage, 1862.

3. LaCassagne: Les tatouages, 1881; Les tatouages: Etude anthropologique et medico-legale.

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operators in pool rooms or with carnivals or street fairs, or in underworld dives where usually the patient and often the operator are under the influence of liquor, and where the methods and also the hazards of the operations are much the same as they were when Bercheron reported his cases sixty-four years ago.

REGULATION OF TATTOOING

Because of the dangers incident to tattooing and the spreading of syphilis thereby, tattooing was forbidden soldiers and sailors by the French ministries after the appearance of Bercheron's report. It has been prohibited in Japan for many years. In this country there are no federal or state laws against tattooing and the army and navy do not prohibit it, although obscene or disfiguring designs are made a cause for rejection in both services. With the exception of Cleveland, Norfolk, Va., and San Francisco, there are no cities with ordinances or regulations either prohibiting or regulating the practice of tattooing. In some states, such as New York, the removal of tattoo marks, however, is construed as coming within the provisions of the laws regulating medical practice and is therefore prohibited unless done by a qualified physician. Numerous instances have been reported to health authorities in which infection or extensive scarring has resulted from ill advised methods of removal in the hands of advertising charlatans.

PERMANENCE OF TATTOOING

The permanence of tattoo marks has long been a matter for debate in medicolegal circles. Undoubtedly, not all tattoo marks are indelible. Permanence depends on a number of factors, chief of which are the pigment used, the method used and physiologic changes in the skin. It has been noted for years that designs made with vermilion, especially, and with vegetable blues or reds, usually fade and in some instances after a lapse of many years become almost invisible. This is thought to be due to absorption by the lymphatics, for the pigment has frequently been recovered from the regional lymph nodes. Cases are on record in which the colored designs have almost entirely disappeared but in which mercury (from the vermilion) has been recovered from the regional lymph nodes and even from the lymphatic system proximal to these nodes. The action of light and chemical change in the tissues probably also play some part, because some pigments fade or disappear without being found in the lymphatics. India ink and carbon produce the most permanent colors, although even they sometimes fade, and Bercheron reports their recovery from the regional nodes.

The method used by the operator is perhaps the greatest factor. The deeper the pigment is deposited in the skin, the longer it lasts. If the needles are introduced obliquely, the pigment as a rule is more superficial, whereas if introduced perpendicularly it is deeper. Tattooing done with the electric needle is more superficial. Tattooing done by native artists, with the chisel, is usually very deep and permanent.

The more superficial tattooing is capable of disappearing through the natural wearing off of the corneal layer and the natural physiologic changes in the skin. Pigment deposited in the corium is, of course, unaffected by these changes.

It is said that in order to keep the colors bright, professional tattooed men must be retattooed about every ten years. This may be true for the brighter colors, red, yellow and green, but the blacks and blues will remain clear and distinct, if introduced into the corium, for a much longer period. I have seen designs 64 years old, said to be still as distinct as when made. Tattoo marks have been found on Egyptian mummies dating from 4000 B. C., and we know that the tattooed design persists as long after death as does the structure of the skin. Instances are on record in which designs on people killed by drowning have resisted a prolonged submersion of more than two months. In the living, even after a part has become gangrenous, the tattooed design can still be plainly seen. Unfortunately, tattoo marks often endure much longer than the sentiment which inspires them. In France, it has been the custom for women of the underworld to be tattooed with the initials of their admirers followed by the phrase "Pour la vie." More than thirty of these were seen on one woman, showing that her affections were much less lasting than their evidence.

HISTOLOGY

Histologic studies of tattooed areas show that the pigment is deposited at varying depths in the corium.

Fig. 7.—Tattooed arms before removal of marks (same as fig. 6).

Most of it lies in the upper layers, and much of it appears to be in the endothelial cells connected with the lymphatics. Most of the pigment is found at a level about midway between the epithelium and the roots of the hair follicles, or at about the level of the sebaceous glands. There is no pigment, of course, in the epithelial layers (fig. 1). This is also true in most cases of so-called accidental tattooing, which are usually the result of powder burns or abrasions in which the epithelium is scraped off and débris, such as cinders, is embedded in the corium. Such "tattooing" also occurs in certain occupations, such as mining. Because the germinal layer of epithelium lining the hair follicles penetrates much deeper into the corium than such deposits, it is possible for the epithelium to regenerate and to cover the lesion without visible scarring. The deposits in the corium are seen through the epithelium as a picture is viewed through the glass which covers it. This epithelial regeneration makes it possible to remove the majority of tattoo marks with but little scarring.

The removal of tattoo marks is still viewed, however, with more or less pessimism both by physicians and by

professional tattooers. A recent textbook on diseases of the skin [5] says that "unfortunately the removal of tattoo marks, unless when they are small, is unsatisfactory and usually impossible except at the expense of a disfiguring scar." A professional tattoo artist writes, relative to the removal of tattooes:

> Never undertake a big job as same is dangerous. If you have an arm full of tattoos you better let them alone. . . . Its been tried the world over and so far none has been found where they offer to remove without a scar.

Lacking the means to remove tattooes efficiently, an old practice among tattooers, used to render obscene designs less objectionable or to change some mark of identification, is to cover the old design with new tattooing.

METHODS OF REMOVAL

Attempts at removal are grouped under three classifications: surgical, electrolytic and chemical. The earliest surgical procedure employed was the production of a burn over the design with a hot iron. When the dead tissue sloughed off, it took the mark with it but usually left a bad scar in its place. Similar results now follow the use of carbon dioxide snow. The simplest surgical procedure used today is the excision of the mark. This is especially applicable for long, narrow designs such as daggers. It is most useful in cases in which the skin is lax, so that the edges of the wound can be drawn together without much tension. With the aid of subcuticular stitches, such wounds heal with only a very fine scar. When the design is so wide that the edges of the wound cannot be drawn together suitably, the defect can be covered with a skin graft. I have used both of these methods very successfully. Of course, there is some surgical scarring following both, but the small scars are much preferable to the marks. By the method of Wederhake, a skin flap, containing the mark, is turned back on a small board and fastened with thumb tacks. The deposits of pigment are then removed from the under surface of the skin and the flap replaced. It is said that this exposes all the deposits of pigment and that they can be removed without modifying the skin, except for the one incision which leaves only a thin scar. Miller,[6] in 1925, advocated a method which essentially reverses the process of accidental tattooing caused by abrasions. After anesthetizing and blanching the skin with procaine hydrochloride and epinephrine, he shaves off the topmost layers as in skin grafting. This brings the pigment clearly into view. With a sharp, thin-bladed knife, he follows the lines of the design and then pinches up the skin, so that the pigment can be cleaned out with sharp scissors. The method is thorough and, in cases of outline tattooing, quite satisfactory. When there is block tattooing, however, considerable scarring results. At least, such has been my experience.

Fig. 8.—During process of removal; thirteen days after treatment.

Miller [7] also advocated electrolysis as a means of removal, using the needle attached to the negative pole of the battery in order to get the softening action of the alkali formed there. After the pigment is laid bare by the needle, it is scraped and picked away as the softening action of the alkali continues on the tissues in which the pigment is deposited. Another method is to insert the needle into the tattoo mark a sufficient number of times to cause blanching of the surface, using a current of from 5 to 8 milliamperes. This forms a superficial eschar which drops off in the course of a week or so, taking the pigment with it and leaving a white superficial scar.

The various chemical methods of removal depend on the use of some agent which will produce an inflammatory reaction and a superficial eschar. Such methods have been in use since the time of Scribonius Largus, a physician in the court of the Emperor Claudius who used garlic and cantharides. Others used such agents as the excrement of pigeons, decomposed urine, pepper and lime, mothers' milk, rue, lye, sulphuric acid, strong vinegar, antimony and cantharides. Many of these substances were pricked into the skin with needles; others were employed in ointments to produce blistering and sloughing. Old manuscripts record that they were often successful, although frequently there was marked scarring. In the early middle ages, tattoo removal became a veritable medical specialty, the physicians Criton, Eros and Annamus especially attaining a reputation for this work.

It has been noted from time to time that certain diseases producing exfoliation of the skin, such as severe scarlet fever and chronic eczema, have occasionally caused the disappearance of tattoo marks. Prolonged blistering of the chest wall, such as was formerly commonly employed during attacks of pneumonia, has also been known to produce similar results.

The chemical methods in use today depend on the production of such a circumscribed eliminative inflammation, and the majority of such methods are merely refinements of those employed by the ancients. Many chemicals are capable of producing such a reaction, but they must be selected with discretion and employed with care. I once removed a large rapidly growing keloid caused by the removal of a tattoo mark with concentrated nitric acid. I have also seen similar results after the use of trichloracetic acid. The use of such powerful topical applications is not only dangerous but attended with marked scarring, and has largely been abandoned. One still occasionally sees cases, however, in which blistering of the skin followed by poulticing has been tried. One such method consists of thorough blistering of the skin followed by the application of hydrogen peroxide in glycerin; another employs, after blistering, an application of a 15 or 20 per cent solution of silver nitrate, and still another employs a strong solution of phenol (carbolic acid)

5. Macleod, J. M. H.: Diseases of the Skin, New York, Paul B. Hoeber, 1921.
6. Miller, C. C.: Excision of Tattoo Marks, Am. J. Surg. **3**: 121 (May) 1925.
7. Miller, C. C.: Electrolysis for the Removal of Tattoo Marks, Med. Council Philadelphia **13**: 374, 1908.

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following the blistering. An Italian pharmacist working in New York painted the designs with pure phenol. After the phenol had tinted the surface of the skin opaque to the color of china, he neutralized it with pure alcohol. Moist dressings were used until peeling was complete. If any trace of the designs remained, another burning took place. Some of the different "cancer pastes," such as antimony, which cause extensive local destruction of the skin, are occasionally used by advertising quacks.

Fig. 9.—Same arm as in figure 8 just after one slough had separated; taken immediately after figure 8.

In articles written twenty years ago I have seen references to the use of the Finsen light. Exposure to this light for one and one-half hours is said to cause marked paling of the design with total disappearance in some parts. One professional tattoo artist with whom I have had some correspondence uses the quartz light to produce exfoliation of the skin. If the mark is superficial enough, repeated treatments with this light are said to cause the mark to fade and in some cases to disappear. In addition, obstinate cases are helped along by the application, in turn, of a 5 per cent solution of tannic acid and a 5 per cent solution of silver nitrate. This causes a superficial eschar, and when this falls off the pigment in some cases goes with it. The drugs now usually employed, however, are brought into closer contact with the pigment by tattooing them into the design to be removed. Brault [8] recommended a 75 per cent solution of zinc chloride for this purpose. Great care must be taken, however, to tattoo it only into the superficial layer of the corium; otherwise a vivid cicatrix will result. When the slough separates it takes with it all the pigment, but too often it leaves a granulating wound which heals slowly and almost always results in a disfiguring scar unless a skin graft is applied. For this reason, and because of the possibility of keloid formation, this method is not recommended, although it is the one advised by at least one professional tattoo artist, who advertises that he will forward a formula to remove tattooing on receipt of $1. In return for the dollar, he sends a copy of excerpts from a reprint on the removal of tattooing in which Brault's method is outlined. He states, however, that "to make yourself safe you might ask your family doctor his opinion on the job, or perhaps he would favor you by applying same."

8. Brault, J.: Ablation des tatouages par les piqûres serrées au chlorure de zinc, application de la methode à la guérison des naevi, Ann. de dermat. et. syph. **6**: 33, 1895.

Favorable results with papaw digestant have been reported. This drug when tattooed into the skin is said to exert a digestive action and to liberate the deposits of pigment, part of which are then absorbed by the lymphatics and part thrown off with the crusts which form following its use. Attempts to secure this drug from several supply houses have failed, and I therefore have had no personal experience with this method.

Variot,[9] in 1888, recommended the use of tannic acid and silver nitrate. Because I have found this method the most satisfactory, I will outline it in detail, together with modifications which I have found useful. The area involved is prepared as for a surgical operation. A 50 per cent solution of tannic acid in water is then tattooed into the design, care being taken that the solution is carried well into the corium. The area is painted with the tannic acid solution and, as the tattooing progresses, an assistant adds fresh tannic acid from time to time with a cotton tampon, so that the tattooing is always done through the solution. The skin must be tightly stretched during the operation to minimize the discomfort and to favor penetration of the chemical to the proper depth. The tattooing can be done in several ways. The simplest is to use a cork into which six or eight fine cambric needles are closely embedded. I find that a short piece of three-eighth inch brass tubing into the slightly flattened end of which are soldered ten fine needles is more convenient and less fatiguing to the fingers. If a dental engine is available, a fine drill will work very well, but care must be taken not to apply enough pressure to cause the drill to puncture the corium or some scarring will result. For outline tattooing or names, probably the easiest and best instrument to use is an electric tattooing needle. The solution must be tattooed thoroughly into the whole design, care being taken to tattoo it deeply into the corium along the edges of the mark where the pigment usually lies deepest. If a dental drill is used, it is applied perpendicularly along the outline of the mark, making individual contacts. The remainder of the mark is treated by moving the rapidly revolving drill back and forth across the design, enough pressure being used to macerate the epithelium and to embed the solution into the corium.

Fig. 10.—Same as figure 9, one week later, after removal of tattoo marks.

9. Variot, G.: Les tatouages, Rev. scientifigue, May 12, 1883; Nouveau procédé de destruction des tatouages, Compt. rend. Soc. de biol., July, 1888; Les tatouages et les peintures de la peau, Rev. scientifique, 1889; Variot, G., and Raoult, M.: Recherches sur les tatouages des piqûquerers et des rhobelleurs des meules, Gaz. méd. de Paris, 1891, number 50.

As the operation progresses, the design becomes gray in tint, somewhat hard to the touch, and elevated above the surrounding skin. When it is completed, the entire design is closely covered with the needle marks and the pigment is almost obliterated by the gray tint and by numerous fine droplets of blood. The excess of tannic acid is then removed from the surrounding area by washing with cold water. Sterile petrolatum or collodion is applied to the adjacent skin, a clean margin of about one-fourth inch being left around the edge of the design. This is done to prevent discoloration of the skin during the next stage. A stick of silver nitrate is then rubbed vigorously into the treated area, forming a heavy black deposit of silver tannate in the corium. When this step is completed, the design itself and the gray discoloration made by the tannic acid are entirely obliterated by the silver tannate. The petrolatum is wiped off and the field washed with cold water. If there is any doubt as to the thorough penetration of the silver tannate into the corium, it is well to dress the "wound" with some of the tannic acid solution; otherwise a sterile dry dressing is all that is required. The operator should wear rubber gloves, to avoid a troublesome deposit of silver tannate on his own fingers.

Fig. 11.—Facial blemishes due to carbon impregnation in automobile accident: "accidental tattooing."

There is surprisingly little pain connected with this procedure, no anesthetic of any sort being required for any except the most sensitive areas, such as the face, or unless there is a large mark to remove. At the outset, the patient occasionally winces a little, but as the tattooing is continued steadily and rapidly, the sensation of pain largely disappears. If it is done slowly and deliberately there is some pain, just as when a hypodermic needle is pushed slowly into the skin, but when done with quick, rapid taps of the needles, there is almost none. There is even less pain with the electric needle, and with the dental drill there is scarcely any unless the drill punctures the corium and penetrates the subcutaneous tissue. I have removed a mark 7 by 3 inches from the forearm at one sitting with scarcely any discomfort, and have removed four such marks from the forearms of one man in the course of ten days. If the operative field is on the face or ears, it should be infiltrated with a procaine hydrochloride-epinephrine solution, not only to prevent pain but because the extreme vascularity of these areas renders it difficult to tattoo the solution into the skin. The most superficial needle prick on the auricle, for example, draws blood, and this blood washes away the tannic acid which it is desired to deposit in the corium, a difficulty obviated by epinephrine infiltration.

There is very little reaction following the operation, certainly no more than that following the original tattooing. There may be slight swelling and redness around the edges, but I have never encountered any reaction greater than this. In two or three days, the dressing may be discarded. The tattooed area gradually becomes hard and dry, and slowly separates from the deeper layers of the corium. In about twelve days the edges are free, and in fifteen or sixteen days the black, dry slough comes off in one piece resembling a thin piece of leather. This contains the epithelium, the silver tannate in the corium, the superficial layers of the corium and the tattoo pigment. While this eschar has been separating, a thin new layer of epithelium has formed beneath it. This remains pink for some time, but gradually takes on the color of the surrounding skin. Occasionally, it will be found that a few small deposits of pigment remain, usually along the edge of the tattoo mark where they have been deposited deeper than in the remainder of the design. They can readily be treated again by the same method.

Whether or not scarring results depends on the depth of the pigment in the corium. If it is superficial to the depths of the hair follicles, as most of it is, it can be removed in many cases without scarring. If it is so deep that the hair follicles are destroyed with the tattoo mark, some scarring will occur.

As the histologic changes of old powder burns and other cases of accidental tattooing are precisely the same as those of tattooing, except that in some cases the carbon is embedded somewhat deeper than the tattoo pigment, it follows that they may be removed in the same way. With these cases, however it is well to raise the edge of the separating slough in about ten days to discover whether all of the carbon deposit has disappeared. If not the slough should be removed at this time and the moist area beneath gently curetted with a trachoma rasp or similar instrument. Compresses of equal parts of hydrogen peroxide and glycerin are then applied and are continued until all the carbon has been removed. When this is necessary, healing is somewhat delayed and, of course, some scarring results because the foreign matter lies deep; but the scar has the appearance of one following a superficial burn and is much less disfiguring than the original blemish. If one sees cases of accidental tattooing within twenty-four hours after the accident has occurred, it is of course easy to remove

Fig. 12.—Same person as in figure 11, after removal of carbon. The patient had a superficial scar similar to that due to a mild burn. At the time this photograph was taken, all the carbon had disappeared. The scar in this case was due to curetting with a trachoma rasp—necessary because much of the carbon lay very deep in the corium. The slough was removed at the end of eleven days, and the remaining carbon removed with the rasp and glycerin and hydrogen peroxide compresses.

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the débris from the corium by other methods before disfiguration has occurred.

SUMMARY

Tattooing is older than written history and has been practiced in all quarters of the globe. Its prevalence today is as great as at any time in its history. The improvement in technic, as well as the general spread of knowledge relative to sanitation and prevention of infection, have combined to minimize the pathologic changes incident to the practice. However, the number of infections still due to tattooing is not inconsiderable, although the majority of such cases are known only to tattoo artists and few are seen by physicians. In only one city in this country is the practice of tattooing prohibited, and in only three others is it in any way regulated. The permanence of tattooing has from the most remote times stimulated efforts at removal, and the pathologic effects of tattoo removal are now better known among public health authorities than those of tattooing itself because it is to them that complaints are made when bad results follow attempts at removal by professional tattooers and advertising charlatans. The removal of tattoo marks should be construed to fall within the scope of the various state medical practice acts, and attempts at removal should be made only by qualified physicians who are able to recognize the limitations and possible complications of any chosen method.

The methods of removal group themselves under three heads: surgical, electrolytic and chemical. The former is very useful for long, narrow marks which can be completely excised without undue strain on the surrounding integument, leaving a fine, narrow scar. Removal by electrolysis is very tedious, and presents no advantages over the chemical methods. The latter all depend on the causation of a localized, eliminative inflammation. Of all the various chemical methods employed at one time or another in the world's history, I believe the method of Variot to be the best when used with the modifications herein presented. The technic is simple and requires nothing that is not almost immediately available everywhere. Because of the presence of most of the pigment external to the deeper layers of the corium, it is possible to remove many of the marks with scarcely any scarring. This method is suitable not only for ordinary tattoo marks but also for blemishes caused by accidental tattooing. The pessimism with which the removal of tattooing is generally regarded is not justified.

ABSTRACT OF DISCUSSION

DR. HAROLD N. COLE, Cleveland: Dr. Shie has given us a real contribution regarding the bane of the dermatologist's existence. We usually tell such a patient that nothing can be done. Dr. Shie is connected with the Marine Hospital in Cleveland; he sees a large number of sailors, and has opportunity to spend a great deal of time on them. I can testify as to the results he gets in these cases and that there is little scar formation.

DR. WILLIAM ALLEN PUSEY, Chicago: I have known of this French method of treating tattoo marks with tannic acid for many years, but this is the first time I have ever heard any one describe his experience with it. I shall now be glad to recommend it in the occasional cases I see. I wish to call attention to a more drastic and perhaps less cosmetically satisfactory way of doing this, which I have used in a few cases. The method is the punctate cauterization of the whole area. It is a fairly disagreeable procedure, but not so disagreeable that even a man will not stand it. I proceed on the basis that the tattoo pigment is quite deep in the corium, as some of it undoubtedly is, and that when a very fine pointed electrocautery is used, and the punctures are made 2 or 3 mm. apart, the scar formation of individual lesions will be very small. In this way I can destroy the corium for 2 or 3 mm. I do not feel that I have obtained as good results as Dr. Shie has, but I can get an atrophic scar in this way. The scars have been soft and varioliform in character rather than thick and hard, and in most instances the patients prefer a scar of that sort to a tattoo mark. The method described today is more worthy of our use.

DR. M. D. SHIE, Cleveland: Perhaps the best use that can be made of this method is in the removal of accidental tattoo marks. These patients come in with large and disfiguring marks from the deposit of carbon. I have seen two little girls whose faces were entirely filled with carbon. I took off the whole area in one case and at one time, in spite of the vascularity of the face. I think that we have a much better prognosis in these cases resulting from injury than heretofore, and that we can save the patients from carrying such a blemish all their lives.

TUBAL PATENCY

CLINICAL STUDY IN SIX HUNDRED AND FIFTY CASES OF STERILITY BY THE METHOD OF PERUTERINE INSUFFLATION COMBINED WITH KYMOGRAPH *

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NEW YORK

Uterotubal insufflation (peruterine tubal insufflation) was devised in November, 1919, and was reported before this section in April, 1920, as a method of determining the fact of tubal patency without the necessity of resorting to a laparotomy.[1] It has since undergone several developments. The addition of manometric and volumetric control has made it possible to elicit diagnostic data that must escape the simple unaided introduction of gas through the uterus and tubes into the peritoneal cavity.[2] Within the past two years I have studied the behavior of the gas insufflation by means of an attached kymograph.

It was manifestly desirable in view of the recent advances in our knowledge of tubal function to endeavor to see whether additional light might not be thrown on:

1. The question of normal tubal patency, including tubal peristalsis.
2. Interference with patency; i. e., stenosis or stricture.
3. The question of spasm in individual cases.
4. The utilization of the method as a means of localizing obstruction and for prognostic purposes.
5. Its utilization as a possible diagnostic aid in estimating ovarian function.

Obviously, if this attempt failed to elucidate any or all of these points, the kymograph would at least serve as a convenient method of recording the behavior of the gas pressure in each clinical case of sterility in which tubal insufflation was employed. I may say at the outset that in this respect it has satisfactorily fulfilled its purpose. Other facts and data have come to light, and thanks to this recent aid have found newer interpretation.

* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Seventy-Eighth Annual Session of the American Medical Association, Washington, D. C., May 19, 1927.

1. Rubin, I. C.: Nonoperative Determination of Patency of Fallopian Tubes by Means of Intra-Uterine Inflation with Oxygen and Production of an Artificial Pneumoperitoneum, J. A. M. A. **75**: 661 (Sept. 4) 1920.

2. Rubin, I. C.: A Manometer and Flow-Volumeter for Transuterine Peritoneal Inflation to Determine Patency of Fallopian Tubes in Cases of Sterility, Am. J. Roentgenol. **8**: 459 (Aug.) 1921; Diagnostic Value and Therapeutic Application of Peruterine Insufflation of the Fallopian Tubes in Cases of Sterility, Am. J. Surgery **1**: 1-14 (July) 1926.

TECHNIC, INDICATIONS AND CONTRAINDICATIONS

The technic of uterine insufflation is now perhaps too well known to require repetition. Only the point of a uniform pressure-rate-flow of the gas within definite time limits may here be mentioned for emphasis. It has been repeatedly pointed out elsewhere by others besides myself that the specific object of the method is to determine the fact of patency in cases of sterility, and all the contraindications must be carefully borne in mind before it may be employed in the interest of diagnosis. The cases must be selected with care, and the tube test should be resorted to not as an independent measure but as a part of the diagnosis of sterility.

In the 650 cases that form the basis of this paper, no untoward sequelae have developed nor was there any serious or unpleasant accident. A symptom occasionally encountered is a sense of faintness which overcomes nervous, apprehensive patients. Usually they are women who have a tendency to become "light headed" at any unusual procedure or event in their daily routine. Realizing this susceptibility, I have found it advisable to question the patient on her first visit as to whether she faints easily or is subject to syncopal attacks, so that in case this is affirmed it may be taken account of in performing the test. In the present series, it was necessary to place three patients in the recumbent posture for two or three minutes to restore them. Fifteen others complained of a sense of faintness during or just after the insufflation. They were all able to dress and resume their duties. The shoulder pains take them by surprise, and as soon as posture relieves them they become reassured.

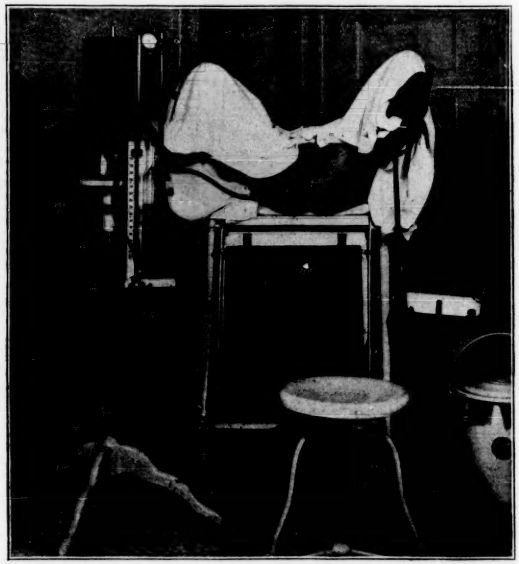

Fig. 1.—Tubal insufflation apparatus with kymograph, manometer, volumeter (siphonmeter), and carbon dioxide tank with pressure reducing valve. The smoked drum is here shown. This can be replaced by an ink writer.

In studying the several points mentioned with the aid of the kymograph, it has been noted that at least three times the amount of gas is insufflated that has previously been found necessary to determine the mere fact of tubal patency. By observing all the rules of careful technic, it has been possible to introduce from 200 to 300 cc. of carbon dioxide in the ambulatory cases, those of the present series having been exclusively examined in the office. The fact that the method can be carried out in this way, however, should not encourage carelessness in technic or disregard of indications and contraindications. On the contrary, one cannot exercise too much care in the choice of the patient, the most favorable time for insufflation and the matter of technic.

The kymograph first used by me was a makeshift assembled roughly for experimental purposes. When it was found feasible, I had Mr. Joseph Becker of the pharmacologic department of Columbia University College of Physicians and Surgeons set up an apparatus, illustrated in figure 1, which would be serviceable at all times. The parts are so arranged as to allow the writing point to trace easily on the drum the pressure variations which take place during insufflation.

NORMAL PATENCY

After the test had been tried out in a sufficient number of cases and its dependability was established, the question arose as to what is normal patency. Experience has taught that there is a variation in the amount of pressure necessary to permit the gas to escape through the tubes. The pressure varies with the degree of patency, from the freely patent tubes to the completely blocked tubes. An intermediary degree is encountered in the permeable strictures and in the transitory spasms. The menstrual phase was recognized as a definite factor in influencing the pressure rise, and it has been pointed out that the postmenstrual interval is the most favorable for performing uterotubal insufflation.[3] Greater pressures are required for the gas to pass through the tubes in the premenstrual phase. Spasm, on the other hand, is an additional cause of higher pressure. If, therefore, one could arrive at a method of determining normal patency, the abnormalities would be more clearly appreciated. Although pregnancy may take place in the presence of one normally patent tube, it might be possible in any given case to determine which is the pathologic tube.

Experiment on extirpated specimens, and in clinical cases in which the abdomen is open and the tubes are exposed to view, has shown that the initial pressure rise in the normally patent tubes is well under 100 millimeters of mercury; frequently not more than from 40 to 60 mm. When the patient is not under anesthesia, the mercury column will be seen to fluctuate after the initial drop as long as the gas passes through the tubes. The fluctuation varies between 10 and 30 or 40 mm. By means of the kymograph, this is graphically

3. Rubin, I. C.: Most Favorable Time for Transuterine Insufflation to Test Tubal Patency, J. A. M. A. 84: 486-489 (Feb. 14) 1925.

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recorded and may be kept as a permanent tracing. The instrument at present employed is adapted for ink writing. The smoked drum was employed in the first 500 of the present series of cases. The ink-writer is much more convenient, and for practical purposes is just as satisfactory.

These pressure fluctuations have been noted on the excised uterus and tubes, which were kept surviving by being immersed in oxygenated Locke's solution. When carbon dioxide was used to insufflate such speci-

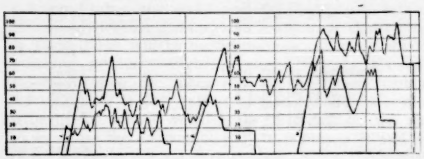

Fig. 2.—Graphic tracings of four cases of normal patency showing normal variations.

mens of uterus, the Locke solution had to be oxygenated. When oxygen was used for the insufflation, the solution did not require extra oxygenation. By a series of experiments I have been able to show that these pressure fluctuations are due to tubal peristalsis. They are totally absent when the tubes are occluded. They are absent in the dead specimen, and they are not artefacts as they cannot be reproduced by insufflating rubber tubing or the like. The nonpregnant uterus is not

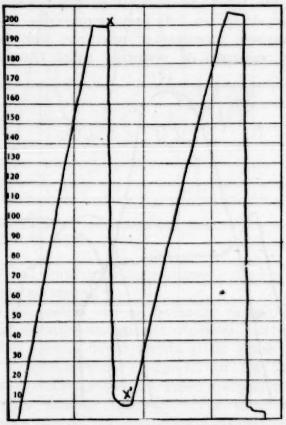

Fig. 3.—Two tracings of uterotubal insufflation in a case of nonpatency (complete tubal obstruction). The gas was released at *X* and was allowed to flow into the uterus again at *X* at practically the same pressure rate flow, 37 seconds per siphon excursion in this case.

responsible for their occurrence, as repeated trials have shown in the nonpatent tube cases and by actual balloon inflation of the uterine cavity.

ABNORMAL PATENCY OF FALLOPIAN TUBES

When the kymographic tracings in the 650 cases clinically examined with uterotubal insufflation are studied it can be seen that the character of these pressure fluctuations varies and they fall into four groups, as follows:

Group 1. The initial pressure rises to 60, 80 or 100 mm., drops 10 to 30 points, and fluctuates between these levels for as long a time as gas passes through the tubes.

TABLE 1.—*Patency and Nonpatency*

Patency (all degrees), from 30 to 200 mm. Hg (subphrenic pneumoperitoneum produced shoulder pains, etc.)	465 cases, or 71.5%
Nonpatency (pressure at 200 mm. Hg and all other evidence being negative for patency) such as absence of subphrenic pneumoperitoneum and absence of shoulder pains	185 cases, or 28.5%
Total	650

Group 2. The initial pressure rises to 200 mm. (at which point the flow of gas is discontinued), remains at that level and unless regurgitation takes place describes a horizontal line on the kymograph. Cervical regurgitation causes slight descent of the pressure line.

Group 3. The initial pressure rises to well above 100, drops sharply or gradually and tends to slope downward as long as gas is flowing through the tubes without describing the typical curves on the kymograph as in group 1, or exhibiting only feeble variations in pressure.

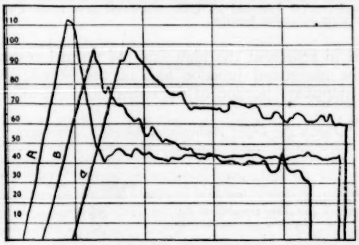

Fig. 4.—Tacings showing various degrees of incomplete tubal obstruction. *A*, *B* and *C* show moderate obstruction.

Group 4. The initial pressure rises to well above 100, even as high as 200 mm., and then drops more or less sharply, tending to describe curves on the revolving drum reminiscent of the graph in group 1.

The patients falling in groups 1 and 2 are the most commonly encountered, group 1 being characteristic for the normal tubes, and group 2 for the occluded tubes.

TABLE 2.—*Normal Patency; Patency Somewhat Impaired; Spasm and Hypertonicity*

	Cases	Percentage of Total Cases	Percentage of Patency Cases
Normal patency Pressure under 90 mm. Hg and manometric fluctuations	275	42	59
Patency somewhat impaired Pressure between 90 and 150 mm. Hg and manometric fluctuations being present	78	12	17
Spasm and hypertonicity Patency (pressure between 150 and 200 and manometric fluctuations being present)	24	4	5

The less common are in group 3, which is characteristic of stricture, and in group 4, which presents instances of spasm. In other words, fluctuations or tubal peristalsis are present when the tubes are freely patent and

in cases of spasm when the latter has been overcome. They are absent when the tubes are occluded or strictured or bound down by adhesions.

An analysis of the 650 cases studied with the aid of the kymograph resulted in the observations presented in the accompanying tables. A pressure of from 90 to 100 millimeters of mercury as the initial rise was

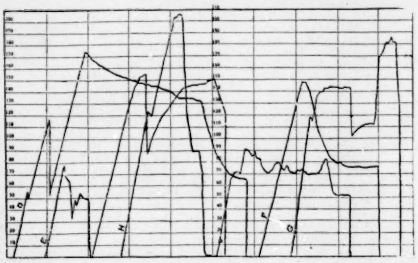

Fig. 5.—*D, E, F* and *G* show more marked obstruction. *H* shows a tight stricture which on previous occasions failed to permit the gas to pass at 200 mm. of mercury. On this occasion, after reaching 205 mm., the gas was released and on being reintroduced passed through at 90 mm. The light curves described show that the tubes have retained to some degree their peristaltic function.

taken to represent the high limit of normal resistance of the uterotubal junction and of the isthmic tonus. The ampullary portion of the lumen does not offer any

TABLE 3.—*Light Adhesions; Organic Strictures*

	Cases	Percentage of Total Cases	Percentage of Patency Cases
Light adhesions	52	8	11
Patency (pressure between 90 and 150 mm. Hg and no manometric fluctuations)			
Organic strictures, tubes pathologic but not totally occluded	36	5.5	0
Patency (pressure between 150 and 200 mm. Hg and no manometric fluctuations)			

resistance to the gas in the nonfunctioning tubes. Pressures greater than 100 mm. may be taken to indicate abnormalities in the tube lumen.

TABLE 4.—*Figures from Table 2 in Detail*

Pressures (with Manometric Fluctuations)	
From 90 to 100 mm. Hg	24 cases
100 to 110 mm. Hg	12 cases
110 to 120 mm. Hg	11 cases
120 to 130 mm. Hg	13 cases
130 to 140 mm. Hg	12 cases
140 to 150 mm. Hg	6 cases
	78 cases, or 12%
From 150 to 160 mm. Hg	8 cases
160 to 170 mm. Hg	2 cases
170 to 180 mm. Hg	6 cases
180 to 190 mm. Hg	0 cases
190 to 200 mm. Hg	8 cases
	24 cases, or 4%

If we regard pressures of 150 mm. and more as indicative of relatively high degrees of abnormality in the tube lumen, the incidence in the present series of 650 cases is as shown in table 6.

In other words, in 4 per cent of the cases there was well marked spasm and hypertonicity, and in 5.5 per cent of the cases there was high grade stricture. The percentage in this group of cases bears interesting comparison with the 38.5 per cent of the cases that proved to be totally nonpatent.

These figures may be arbitrary and will probably be modified by a larger series of cases, but they will serve

TABLE 5.—*Figures from Table 3 in Detail*

Pressures (without Manometric Fluctuations)	
From 90 to 100 mm. Hg	3 cases
100 to 110 mm. Hg	6 cases
110 to 120 mm. Hg	16 cases
120 to 130 mm. Hg	11 cases
130 to 140 mm. Hg	9 cases
140 to 150 mm. Hg	7 cases
	52 cases, or 8%
From 150 to 160 mm. Hg	11 cases
160 to 170 mm. Hg	5 cases
170 to 180 mm. Hg	7 cases
180 to 190 mm. Hg	4 cases
190 to 200 mm. Hg	3 cases
200 to 210 mm. Hg	6 cases
	36 cases, or 5.5%

as a practical guide in following the clinical course of individual patients. The follow-up with respect to the number of pregnancies that may result in each group, the number of permanent sterilities, and lastly the number of ectopic pregnancies will naturally modify or

TABLE 6.—*High Degrees of Abnormality*

With manometric fluctuations, pressures from 150 to 200 mm. Hg	24 cases, or 4%
Without manometric fluctuations, pressures from 150 to 200 mm. Hg	36 cases, or 5.5%

establish the practical division of the relative degrees of stricture or spasm. As greater precision in diagnosis may encourage attempts at operative and even nonoperative measures of restoring tubal function, these

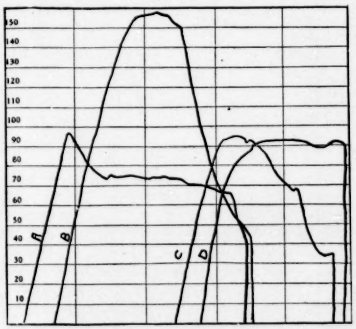

Fig. 6.—Tracings showing complete or almost complete absence of pressure fluctuations. *B, C* and *D* illustrate the gradual rounded curves at the initial pressure drop. Their special significance is not understood.

figures may perhaps serve as a tentative basis on which to formulate prognosis, and by which we may be guided in the selection of cases for operation.

INFLUENCE OF INTRA-ABDOMINAL PRESSURE ON THE INSUFFLATION GRAPH

When the gas enters the peritoneal cavity through the tubes, changes in intra-abdominal pressure can also be recorded. When the tubes are closed, such intra-abdominal pressure changes cannot be recorded. There

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are circumstances when, for reasons which will be taken up later, the fluctuations are slight or irregular and it is somewhat doubtful whether the tubes are open. If, when in such a case the patient is asked to bear down voluntarily, there is a simultaneous rise in pressure, it is evidence that the gas has succeeded in entering the peritoneal cavity. Coughing, sneezing or very deep breathing may produce similar pressure rises when the tubes are freely patent or only partially occluded

When the gas passes through stenosed or partially strictured tubes, the initial pressure being from 160 to 200 millimeters of mercury and a slight or sharp drop is noted, there will be no fluctuations. But voluntary straining produces slight pressure rises as the gas passes through the tubes into the peritoneal cavity. An exception to this rule is offered by the case of a large atonic uterus which is so distended by the gas as to allow the abdominal wall to press on it and so cause a rise in the mercury column. This mechanical effect can be demonstrated by filling the urinary bladder

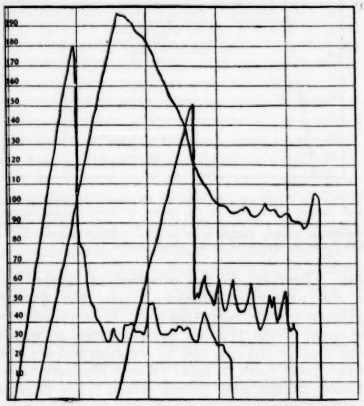

Fig. 7.—Tracings of uterotubal spasm. Stricture may or may not be associated with the spasm.

with gas and making manual pressure over it or asking the patient to strain.

When the initial rise of pressure is within normal limits and fluctuations are not observed, except that as the patient bears down there is at once a distinct increase in pressure as evidenced on the drum, it is presumptive evidence that the tubes are patent but probably not functioning normally. The same holds true in the presence of cervical regurgitation. The latter is sometimes confusing in the performance of the insufflation test. When voluntary bearing down efforts or coughing produce pressure changes in spite of the regurgitation and they are also recorded on the kymograph, they may be taken to indicate that the tubes are patent.

A different picture is presented in the presence of spasm of the tubo-uterine junction. In this case the initial pressure rises to well above 100 millimeters of mercury, usually to from 150 to 180 or even 200 mm. The pressure falls to 140 or less in a gradual descent, or sharply to a lower level when fluctuations more or less typical are exhibited. This may not be repeated on a subsequent insufflation. The strictured tubes, however, require in repeated tests practically the same relatively high initial pressure before the gas passes through them. Rhythmic contractions are inhibited altogether or are very much restricted, owing to the rigidity of the tubes which are bound down by adhesions or because their walls are infiltrated with the products of inflammation. Studies in the effect of cer-

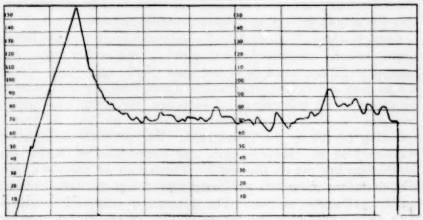

Fig. 8.—An initial pressure rise of 160 mm., dropping gradually to 70 mm., describing superficial curves not more than 5 mm. in depth for practically seven minutes. Only three fluctuations during the insufflation reached a depth of from 10 to 15 mm. At operation the tubes were found adherent and kinked, the fimbria being opened.

tain pharmacologic substances on spasm and peristalsis in general await systematic trial.

Function and pathologic anatomy are apparently contrasted by the behavior of the manometric fluctuations, and these may be regarded as diagnostic. By paying attention to these differences, I have been able to diagnose pathologic alterations in and around the tubes which have otherwise escaped detection by the examining fingers, by the unaided test and even by uterotubal radiography with iodized oil. They are, moreover, of increased prognostic value. Though the number of cases coming to laparotomy were few when these differences could be checked up, they have thus far substantiated my interpretation so uniformly as to justify my calling attention to their clinical diagnostic importance.

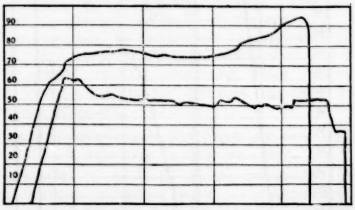

Fig. 9.—Note the absence of pressure fluctuations. Compare with figure 6.

The three following cases illustrate the diagnostic and prognostic value of uterotubal insufflation aided by the kymograph.

REPORT OF CASES

CASE 1.—Mrs. B. M. had three tubal insufflations performed by her physician in Rochester, N. Y. The gas had failed to pass through the tubes, although high pressure was used. Dec. 9, 1926, I examined her with the aid of the kymograph and the initial pressure reached was 160; the initial drop was sharp down to 110 and gradually it fell to 70; thereafter very shallow atypical curves were described on the kymograph.

Pain was felt by the patient in both sides of the pelvis and in the back, the left sided pain being the more severe. In view of the history, the relatively high pressure reached and the atypical very irregular, shallow contraction waves, the diagnosis of peritubal adhesions was made. At the laparotomy both tubes were found to be adherent, on the left side to the sigmoid and ovary; on the right side to the ovary and the posterior leaf of the broad ligament. The fimbriae were slightly glued together, though gas was seen to escape through them (uterotubal insufflation during the laparotomy). When the adhesions were removed and the tubes became straightened out, the gas flowed in at normal pressure ranges.

CASE 2.—Mrs. F. G. had had a salpingectomy for an unruptured ectopic pregnancy (left side). The other tube was normal to all appearances at the time of the operation. Seven weeks later peruterine insufflation showed the residual tube to be patent at 62 millimeters of mercury, but there was almost complete absence of manometric fluctuations and of corresponding curves on the kymograph. The pressure was almost stationary at 50. Midline pain was complained of during the insufflation but not on the sides. The lumen of the right tube was therefore shown to be freely patent, but the tube did not exhibit peristaltic motion. The absence of rhythmic contractions in this case suggests the possibility of ovular interception in that tube in case of impregnation, and it will be interesting to follow her future history.

CASE 3.—Mrs. R. S. had had a tubal insufflation, June 17, 1925, at which time the pressure rose to 210, and there was midline and left sided pain; there was no subphrenic pneumoperitoneum. July 16, the pressure rose to 210 with midline pain. Very slight subphrenic pneumoperitoneum was present. August 14, the pressure rose to 200 and fell to 130, without fluctuations. Subphrenic pneumoperitoneum was present. Dec. 27, 1926, pressure rose to 210; a second attempt immediately following allowed the pressure to rise to 134, when the gas was discontinued, showing a parabolic curve; there

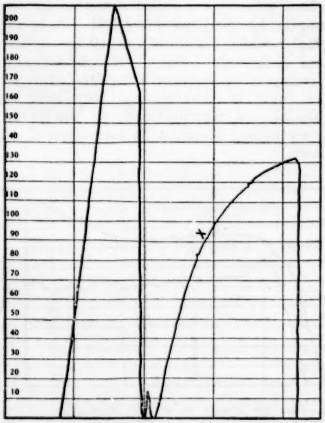

Fig. 10.—An initial rise to 210 mm. with a slight tendency to drop in spite of no regurgitation. The gas was then allowed to enter the uterus and a curve was described, indicated by *X*, suggesting the flow of gas through the tubes into the peritoneal cavity as none was heard to escape from the cervix. By fluoroscopy a leftsided pneumoperitoneum was demonstrable.

were no fluctuations. Subphrenic pneumoperitoneum was present on the left side, and there were left shoulder pains. December 30, the initial pressure rose to 190, dropped to 110 and fell very gradually to 95 without exhibiting typical fluctuations in the manometer. This case illustrates a possible therapeutic effect of repeated insufflations in tubes that are stenosed or strictured but not completely occluded.

THE QUESTION OF LOCALIZING OBSTRUCTION IN THE TUBES

The data obtained by the use of the kymograph have been of help in estimating the location of the obstruction. It has already been pointed out that when the initial pressure rises to from 40 to 80 millimeters of mercury, the drop being characteristic and followed by fluctuations in the manometer, the tubes are normally

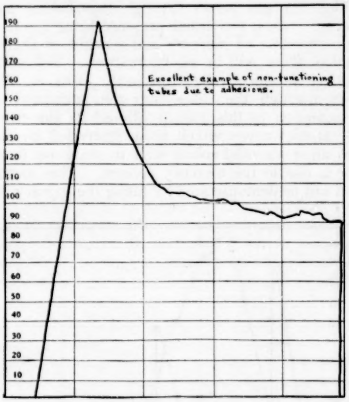

Fig. 11.—An initial pressure rise to 190 mm., dropping gradually to 105 and further to 95 mm. in the course of three minutes without any tendency to describe curves on the kymograph. This patient reported her last menstrual period, March 5 to 8, 1927. When examined, May 14, she was found to be gravid in her third month.

patent. Clinically, in the presence of closure of one tube, the patient experiences some pain during the insufflation on the side affected. It is reminiscent in some cases of the type of dysmenorrhea to which the patient may be subject, and its location and distribution in other cases point to tubal colic. The pain is due to stretching of the tube lumen which takes place when an obstruction exists. If the closure is at the fimbriated end, the pain is definitely lateral; if closed at the uterine end, it may be central. The pressure is usually elevated when one tube is completely obstructed.

Pain is of great importance in diagnosing the degree of patency. In the normal cases, the insufflation is unattended by pain. The patient experiences at the most a sense of discomfort characteristic of the menstrual molimina referred to the midline (occupied by the uterus), and the momentary sense of discomfort occasioned by the introduction of the uterine cannula. In the great majority of the normally patent tube cases, the discomfort is limited to the brief moment required to introduce the uterine cannula beyond the internal os. Any pain induced by the examination beyond this slight uterine discomfort has telltale value and should be carefully noted.

In general, the diagnostic significance of pain during uterotubal insufflation may be summarized as follows: (1) midline pain; (2) unilateral pain; (3) bilateral pain; (4) epigastric pain, and (5) shoulder pains.

Pain Due to Grasping the Cervix with Bullet Forceps.—If the cervix is grasped on its anterior lip there will be no perception of pain in the vast majority of the patients. The uterine cannula evokes momentary discomfort in many. If this is marked it is an indica-

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tion of general hypersensitiveness or perhaps of an increase in local tenderness. It is well to bear this in mind as occasionally, though rarely, the patient who is intolerant to this manipulation proves to be intolerant to the procedure. On the other hand, it may point to the presence of a uterus in hypertonicity or to perimetrial adhesions. It is better in such a case to defer the insufflation and first resort to antispasmodics. In no case of this series was an anesthetic necessary.

Midline Suprasymphyseal Pain.—Slight pain in this area may be present in normal tubal patency, and is due to distention of the uterine cavity. When this pain increases as the pressure rises to 200 millimeters of mercury, it is presumptive evidence that the tubes are obstructed at the isthmus or near the uterine horn. If the pressure stays at 200 mm., describing a horizontal line on the kymograph, and neither subphrenic pneumoperitoneum nor any shoulder pains are present, the diagnosis of cornual obstruction is practically certain. A second insufflation at another time or perhaps repeated at the same time to exclude the possibility of uterotubal spasm will establish the diagnosis.

Unilateral Pain.—Such pain indicates that one tube lumen is partially permeable to the gas and is distended by it, the closure in this instance being in the ampullary portion as far as the fimbria or at a point between the isthmico-ampullary junction and the fimbria. If the pressure rises as high as 200 mm. and the gas fails to enter the peritoneal cavity, it means that the other tube is most likely obliterated at the isthmus or near the uterine horn. Frequently the withdrawal of the uterine cannula is followed by somewhat prolonged regurgitation, indicating that both uterus and tube were distended with the gas.

If the pressure rises above 100 mm. and a subphrenic pneumoperitoneum is produced, the unilateral pain indicates that there is some occlusion on the side of the pain.

Bilateral Pain.—This indicates bilateral tubal stricture. When associated with a subphrenic pneumoperitoneum and higher pressure, it means partial obstruction. When no subphrenic pneumoperitoneum is produced, it means obstruction of both tubes near the fimbria, or at least in the ampulla of the tubes. When subphrenic pneumoperitoneum is produced in the presence of bilateral pain and high pressure, the kymographic tracing will show the absence of fluctuations, thus further indicating a pathologic lesion in the tubes and the absence of normal function.

Epigastric Distress.—This symptom is practically never complained of when the tubes are closed. It is frequently present when an appreciable amount (200 cc.) of gas has succeeded in entering the peritoneal cavity. This subphrenic pain is felt by the patient even before rising from the table. It is somewhat increased by the erect posture. Prompt relief from this symptom occurs as soon as the patient lies down flat or is placed in the Trendelenburg posture.

Shoulder Pains.—In this region, pains are pathognomonic of the presence of a subphrenic pneumoperitoneum, and the latter may be corroborated by the actual visualization under the fluoroscope of a clear space indicating the presence of the gas. In the neuropathic patient, fluoroscopic control is of especial value. These pains may also be made to disappear by having the patient assume a supine posture for a few minutes or, what is even better, the Trendelenburg posture, during which time the gas rises to the pelvic cavity, where it is rapidly absorbed.

The pains which are diagnostic of the point of tubal obstruction disappear the moment the cannula is withdrawn from the uterus. As only about two siphon excursions of the volumeter are required to cause the gas pressure to reach 200 mm., and as each excursion lasts from thirty to forty seconds, the duration of this pain or discomfort is at most one minute and often less.

I have checked up the data obtained by studying the behavior of uterotubal insufflation with attached kymograph in cases of tubal occlusion with intra-uterine injections of iodized oil, and have found the results to be practically identical. A discussion of the comparative value of these two methods of examination in instances of tubal occlusion will not be entered into here. It is generally conceded that uterotubal insufflation should precede iodized oil or any other opaque substance which may be injected into the uterus for roentgenographic evidence of tubal obstruction. From the study made with Dr. A. J. Bendick in this connection, I am led to the conclusion that at least as much information can be obtained by the gas method combined with the kymograph as with the iodized oil injections. The picture taken after injections of iodized oil cannot determine what it is possible to recognize with the kymograph record; namely, the presence of tubal adhesions which bind the tube externally, inhibiting its normal function without occluding the tube lumen.

THE MATTER OF PROGNOSIS

It has been possible to arrive at a better prognosis, thanks to the aid rendered by the kymograph, particularly in those instances in which the initial pressure rise was above 100 mm. It must be obvious that the strictured or stenosed tubes, whether due to endosalpingeal causes or perisalpingeal causes, are not favorable for impregnation, and in the event of the latter predispose to an unhappy interception of the ovum in the oviduct with its sometimes tragic result. The spasms, on the other hand, can yield to therapy. Meaker's suggestion in this class of cases is of value. I have not checked up the action of atropine, pilocarpine, physostigmine, benzyl benzoate or epinephrine systematically in these cases, nor have I as yet studied the effect of the oxytocics, including solution of pituitary, on the manifestation of tubal peristalsis either clinically or on the extirpated specimen. This remains to be done, and will undoubtedly increase our therapeutic equipment. In the normal patency cases, on the other hand, I am prepared to tell the patient that as far as the genital tract is concerned, other factors, of course, being accounted for, she may reasonably expect to become pregnant.

ESTIMATION OF OVARIAN FUNCTION BY THE METHOD OF PERUTERINE INSUFFLATION

The results of research on the physiology of the fallopian tubes in recent years have demonstrated a definite causal relation between ovarian function and tubal motions. In general, tubal function in practically all animals is heightened at the time of ovulation, and is less marked at other phases of the menstrual cycle or of estrus. Experiments that have established this fact were made on strips of tubal muscle, and in some cases by observations on the behavior of tubal and uterine motions of the intact organs themselves immersed in Locke's solution. The same results apparently have been accomplished by insufflating the uterus and tubes. During life, peristaltic motion can be demonstrated by insufflating the uterus and tubes with carbon dioxide gas. In a number of the present series

of cases, there were patients who had conditions varying from oligomenorrhea to complete amenorrhea. In a small number of patients not included in this group, who were in the preclimacteric state and in the postclimacteric state, I have had an opportunity of insufflating the uterus and tubes in order to study the presence of rhythmic contractions. In a small number I have been able to repeat the insufflation in the midmenstrual period, the time when ovulation is supposed to take place in the average woman. The results so far obtained have indicated that there is a variation in the frequency and character of the rhythmic contractions. But I am not as yet prepared to state that there is the same uniformity in the clinical cases which has been established by the muscle strip experiments in lower animals. Further observations along this line must be made in conjunction with parallel investigations that may be carried out in estimating the quantity of female sex hormone, as has been developed by Dr. Robert T. Frank and others, thereby increasing our knowledge as to ovarian function. Whether the female sex hormone will prove responsible for activating the uterine mucosa and also tubal peristalsis at the same time by increasing and decreasing quantities poured into the blood stream or through the follicle fluid directly into the oviduct remains to be determined. It appears from the observations that I have been able to make with peruterine insufflation that, in some of the cases of prolonged amenorrhea, tubal peristalsis is well preserved, so that this function may be the result of a definite hormone emanating from the ovary and designed for ovular transportation. The sex hormone which causes menstruation in these cases is either markedly deficient, subthreshold or entirely absent.

CLINICAL DATA OBTAINED WITH THE FEMALE SEX HORMONE BLOOD TEST *

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AND
M. A. GOLDBERGER, M.D.
NEW YORK

Our blood test [1] has thrown a flood of light on some of the most obscure diseases of women and has enabled us to gage with accuracy the functional activity or inactivity of the ovaries. The test has proved of value not only in the diagnosis of obscure conditions but also in formulating the prognosis of both amenorrheas and metrorrhagias, as well as a guide in evaluating the effect of treatment.

The work presented here is the logical outcome of investigations pursued with some unavoidable interruptions since 1906. The fundamental work, between 1906 and 1925, was performed by one of us (R. T. F.) with the collaboration of a number of investigators, including the late Dr. Jacob Rosenbloom, Mr. Lee, Dr. Giese, Dr. R. G. Gustavson, Mr. Kingery and Mr. Bonham.

A very brief outline of this preliminary fundamental work is necessary in order to make clear what follows.

For the sake of continuity, strict chronological order will not be adhered to in this short presentation. In 1917 (published in 1922) one of us [2] demonstrated that the undiluted follicle fluid produced marked hyperplasia of the uterus, vagina and breasts in virgin, immature rabbits, and drew the warranted deduction that the sexual cycle is initiated and due to ovarian follicular action. "As far as can be determined at present, only one factor comes into play, and that is the development, growth and evolution of the ovarian follicle, which begins as the primordial follicle, is called a graafian follicle as it ripens,

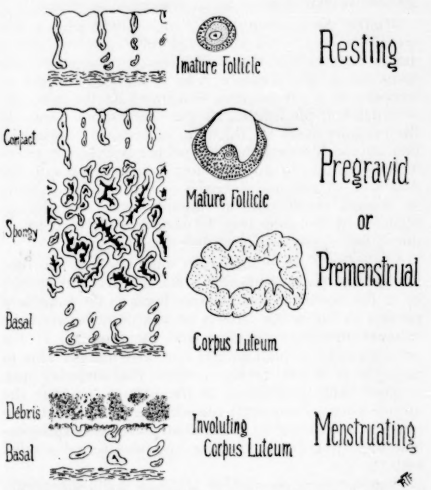

Fig. 1.—Schematic representation of uterine and ovarian abortive cycle shown side by side. The ovary is the active producer of the changes in the uterus.

and, after ovulation or bursting has taken place, completes its cycle of existence as the corpus luteum." Previously we had shown [3] that the female sex hormone, as we call the active substance, can be extracted from the corpus luteum and from the placenta. In order to emphasize the physiologic continuity of action of these anatomically different glands, as well as their significance, we named them collectively "the gestational gland." In these three glands the hormone originates. Next we [4] proved not only that the female sex hormone can produce puberty if injected into immature animals, as was known, but also that puberty once established, though premature, continues automatically when the primary stimulation exerted by the female sex hormone on the gonads has been initiated. We [5] also demonstrated that the female sex hormone governs the rate of automatic contraction of the uterine muscle, its effect being to slow the rhythm after ovulation and continuing this inhibitory action throughout pregnancy. We [6] further showed that the female sex hormone is present in the circulating blood, the first hormone thus recovered from the circulation, and that its concentration in the blood increases

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* From the Gynecological Service and the Laboratories of Mount Sinai Hospital.

* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Seventy-Eighth Annual Session of the American Medical Association, Washington, D. C., May 19, 1920.

1. Frank, R. T., and Goldberger, M.A.: The Female Sex Hormone: IV. Its Occurrence in the Circulating and Menstrual Blood of the Human Female: Preliminary Report, J. A. M. A. **86:** 1686 (May 29) 1926.

2. Frank, R. T.: The Ovary and the Endocrinologist, J. A. M. A. **78:** 181 (Jan. 21) 1922.

3. Frank, R. T., and Rosenbloom, J.: Physiologically Active Substance Contained in the Placenta and in the Corpus Luteum: Preliminary Report, Surg. Gynec. Obst. **21:** 646 (Nov.) 1915. Frank, R. T., and Gustavson, R. G.: The Female Sex Hormone and the Gestational Gland, J. A. M. A. **84:** 1715 (June 6) 1925.

4. Frank, R. T.; Kingery, H. M., and Gustavson, R. G.: The Female Sex Hormone: An Analysis of Factors Producing Puberty, J. A. M. A. **85:** 1558 (Nov. 14) 1925.

5. Frank, R. T.; Bonham, C. D., and Gustavson, R. G.: A New Method of Assaying the Potency of the Female Sex Hormone Based upon Its Effect on the Spontaneous Contraction of the Uterus of the White Rat, Am. J. Physiol. **74:** 395 (Oct.) 1925.

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after ovulation up to the time of estrus. Figure 1 illustrates schematically the effect of the ovarian action on the human uterus.

The present report is based on and is the outgrowth of these preliminary investigations. Since the fall of 1925, we (Frank and Goldberger) have studied the presence and the concentration of the female sex hormone in the circulating blood of the human female by means of the reaction, details of which we [7] published in 1926.

In order to be able to appreciate the effect of differences in the amount of female sex hormone secreted in the human organism, it was essential to determine not merely the presence of the female sex hormone in the normal individual but also the fluctuations that the active substance undergoes. Since publishing our preliminary reports [8] we have collected the data in seventy-one cases with normal menstrual cycle, as well as the bloods of eighty-five pregnant women. We have also studied the blood coming from the uterus during the normal menstrual period as well as in cases of irregular uterine bleeding.

Method and Technic

The technic of the reaction used is readily accessible in our article "The Female Sex Hormone: VI." [7]

The reaction consists in obtaining 40 cc. of venous blood; pouring the unclotted blood into 60 cc. of pure, not denatured, 95 per cent ethyl alcohol; evaporating to dryness under reduced pressure; triturating the residual powder finely; extracting twice with pure ether; again evaporating to dryness and emulsifying the ether soluble residue in 2 cc. of sterile distilled water. The emulsion is injected in five divided doses, distributed over a period of ten hours, into a castrated mouse, due precautions being taken to reduce the leakage from puncture holes to a minimum.

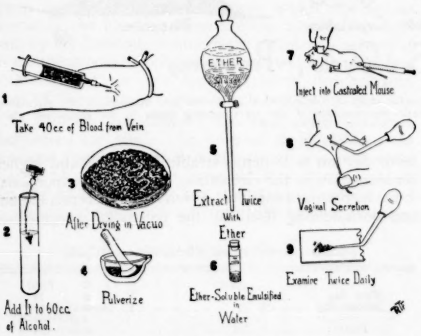

Fig. 2.—Technic of the blood test shown graphically.

Figure 2 shows the technic graphically.

A vaginal smear obtained from the mouse in from thirty-six to forty-eight hours is recorded as:

Negative 0 if there is a preponderance of leukocytes in the spread.

Weak + 2 if a large amount of nucleated epithelium is present but a few leukocytes persist.

Threshold + 3 if the smear contains an excess of epithelial cells, no leukocytes.

Strong + 4 if the smear shows only non-nucleated squamous epithelial scales.

Every positive reaction is controlled by daily vaginal spreads examined over a period of ten succeeding days, in order to exclude regeneration of an overlooked fragment of ovary and consequently a mistake due to reestablishment of the spontaneous cyclic reaction.

Norms

1. *The Nonpregnant Normal Cycle.*—In seventy-one women, vein blood was obtained during various portions of the cycle. From the twenty-third to the tenth

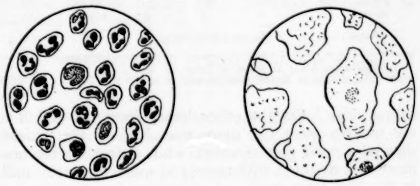

Fig. 3.—Medium power magnification of vaginal spreads taken from the same mouse. To the left, "negative" spread; leukocytes. To the right, "positive" spread resulting from injection of a positive blood; squamous epithelial scales.

day before the expected menstruation, even 40 cc. of blood from the circulation did not contain a mouse unit. From the tenth to the third day before the menses, 44 per cent of the bloods contained a mouse unit, while in from three to one days before the anticipated flow, 100 per cent showed at least a mouse unit. At this time the threshold dose was contained at the lowest in from 20 cc. (rare) to 40 cc., from 30 to 35 cc. usually sufficing for a threshold dose. With the onset of the menses the hormone disappeared with varying degrees of

Table 1.—*Normal Cycle, Vein Blood*

	Number of Cases	+	±	0	
23–20 days before	3	—	—	3	
20–15 days before	17	—	—	17	100% = 0
15–10 days before	10	—	—	10	
10–5 days before	14	6	2	6	44% = +
5–3 days before	4	2	1	1	
3–1 days before	13	13	—	—	100% = +
First day of menstruation	8	3	2	3	
Second day of menstruation	2	1	—	1	
Total	71				

celerity from the circulation, then appearing as a rule for a short time in the first part of the menstrual blood passed.

A typical example of what takes place in the blood is seen by the study of case 1027:

40 cc. of vein blood taken 5 days before anticipated menses = + 3.

40 cc. of vein blood taken 15 days before next anticipated menses = 0.

40 cc. of vein blood taken 11 days before next anticipated menses = 0.

40 cc. of vein blood taken 5 days before next anticipated menses = 0.

40 cc. of vein blood taken 1 day before next anticipated menses = + 3.

40 cc. of vein blood taken 14 days before next anticipated menses = 0.

7. Frank, R. T., and Goldberger, M. A.: The Female Sex Hormone: VI. Demonstration of the Female Sex Hormone in the Human Blood; Technic; Clinical Applicability, J. A. M. A. **87**: 1719 (Nov. 20) 1926.

8. Frank and Goldberger (footnote 1). Frank, R. T.: Function of the Ovary, a Résumé: Fifth Paper, Am. J. Obst. & Gynec. **12**: 585 (Oct.) 1926.

2. *Pregnancy.*—The blood of eighty-five pregnant women was examined. In the first to the fourth week of pregnancy the hormone was never discovered in the circulating blood even if 50 cc. was used. From the fourth to the eighth week the hormone was found only once in fifteen cases in sufficient quantity to give a mouse dose. On the other hand, from the eighth to the twelfth week on, more than half of the patients showed a good plus reaction, while thereafter the hormone was detected with more and more regularity until in the last four weeks of pregnancy it was found in every case examined. During the last six months of our investigation, since our technic has been increasingly standardized, we have found a positive reaction after the twelfth week with uniform regularity. If absent, as we shall refer to later, some pathologic significance must be ascribed to such a negative finding.

TABLE 2.—*Pregnancy, Vein Blood*

Weeks of Pregnancy	Number of Cases	+	0	% +	% 0
1–4	6	0	6	0	100
4–8	15	1	14	6.6	93.4
8–12	13	8	5	61	39
12–24	16	14	2	87	13
24–36	32	27	5	84.2	15.7
36–40	3	3	0	100	0
Total	85				

In two cases blood at onset of labor = +
In from 1½ to 24 hours' post partum = 0

3. *Normal Menstrual Bloods.*—The menstrual blood shed on the first day usually contains a considerable quantity of female sex hormone, which in some instances, however, is no longer demonstrable in the blood collected after the first few hours of bleeding. On the second and third day, demonstration of the hormone in the menstrual blood is still less frequent (table 3).

We have found that after 10 cc. of menstrual blood has been excreted, the concentration of the hormone is often too small to give a positive test (table 4). In one instance we were fortunate in obtaining the vein and menstrual blood at the same time at a period in which a mouse dose could be found in both, 30 cc. of vein blood giving a plus 3 at the time that 5 cc. of menstrual blood gave a reaction of equal strength, the ratio being 1:6. The exact mechanism by which, as well as the exact time at which this concentration in the uterus takes place, has not yet been cleared up.

SUMMARY OF NORMS

From these preliminary investigations it becomes evident that the factors at work in the sex cycle of the human female can now be analyzed from the point of view of their ovarian, their uterine and their circulatory components. During the beginning of the cycle, from the twenty-third to the tenth day before the anticipated menstruation, the circulating blood contains little or no hormone. Shortly after ovulation takes place, a quantity of follicle fluid is absorbed by the pelvic peritoneum. If physiologists and clinicians are correct in placing the period of ovulation in the human being about fourteen days before the anticipated period, it would appear that there is a latent time of approximately four days during which the hormone is not evident in sufficient quantity in the circulation to be demonstrated in the blood. Whether this signifies that the hormone is selectively taken up by the uterus as rapidly as formed, or whether ovulation occurs later than has previously been assumed, or whether the quantity liberated at that time is insufficient to give a reaction, we are unable to say. From the tenth day on it is demonstrable in higher and higher concentration in the circulation, seemingly proportional to the increasing functional activity of the corpus luteum and documenting itself by the increasing turgescence and secretory activity of the uterus and breasts. If impregnation takes place, the hormone disappears from the circulation. The explanation of this finding we are unable to offer at present, although the fact that the hormone again reappears in the circulation by the twelfth week or earlier, when placentation is definitely

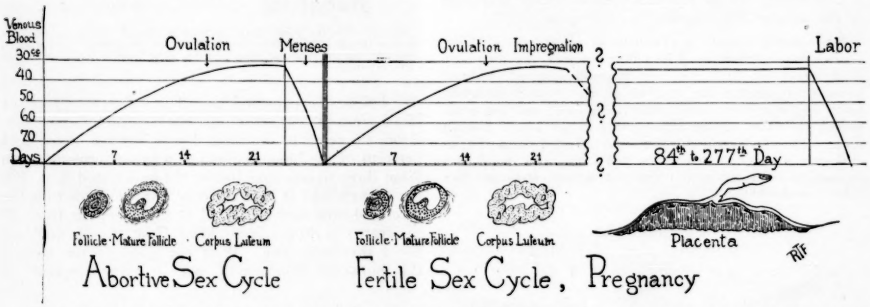

Fig. 4.—Concentration of the female sex hormone in the blood: Above, graphic chart of concentration of female sex hormone in the circulating blood at various periods of the sex cycle in the human female. Below, schematic representation of the corresponding phase in the gestational gland which elaborates the hormone.

TABLE 3.—*Menstrual Blood, Normal Cycle*

	+	±	0	Total
First day	7	1	6	14
Second day	0	1	9	10
Total				24

TABLE 4.—*Menstrual Blood, First Day of Menses*

Amount, Cc.	+	±	0
2–3	—	—	1
3–5	2	1	2
5–10	2	—	2
10	3	—	2

established, makes us suspect that the full elaboration of the placenta must have something to do with the renewed high level of hormone concentration in the blood. Figure 4 shows graphically the concentration of female sex hormone in the blood of the human female during the short, abortive or infertile cycle as well as during the long or fertile cycle (pregnancy).

PATHOLOGIC CONDITIONS

After establishing the norms necessary for standardization and comparison, the blood of numerous women suffering from abnormalities was investigated. For the sake of clarity, we have divided the material into several groups.

1. Bleeding; including menorrhagia, metrorrhagia and the hemorrhages of puberty.
2. Functional overactivity; documenting itself as premenstrual tension and poisoning, as well as in molimina without menstruation.
3. Amenorrhea.
4. Women who have never menstruated.
5. Malformation in which sex had to be determined.
6. Sterility.
7. Abnormalities of pregnancy.

Because of lack of space, a large amount of material must be presented in a most summary fashion.

1. BLEEDING

A. *Menorrhagias.*—These include excessive bleeding in which evidence of periodicity has been preserved. Six cases were thoroughly studied. These patients showed a considerable concentration of the hormone in the blood ten days before menstruation and likewise appeared to preserve a higher concentration of the hormone in the circulation after bleeding had continued than is the rule in normal cases.

B. *Metrorrhagias.*—Eleven cases were studied. Two types can be distinguished, those which during the course of the bleeding show a cycle manifesting itself both by the hormone found in the circulation as well as in the menstrual blood, and those in which the bleeding continues without any hormone being demonstrable. Both of these groups require much further study.

C. *Puberty Bleeding.*—Only two cases presented themselves for study. In both of these children the hormone could be found in the circulation and in the uterine blood long after it would have disappeared in the normal cases of bleeding, a fact which we interpret as signifying much overactivity of the ovarian function.

TABLE 5.—*Uterine Blood, Irregular Bleeding*

	Number of Cases	+	±	0
Puberty bleeding	2	2	—	—
Menorrhagia	6	3	—	3
Metrorrhagia	16	3	1	12

2. FUNCTIONAL OVERACTIVITY

A. *With Premenstrual Tension.*—This was shown by a considerable group of women and manifesting itself by extreme nervousness, symptoms of autonomic imbalance, irritability, psychic changes and a feeling of tremendous tension. These women show an excess of hormone in the blood, the threshold amount being contained in 20 and 30 cc. of venous blood. Prompt, although extremely temporary, relief is obtained by venesection of from 40 to 60 cc., which also delays the appearance of menstruation but unfortunately simply postpones the evil day. In one instance, after roentgen-ray treatment of the ovaries (less than a castration dose) the relief of symptoms was accompanied by a marked diminution of the concentration of the hormone in the blood, which persisted for several months until the roentgen-ray effect wore off, when the tension reappeared.

B. A number of cases were watched with severe molimina, such as backache, abdominal cramps, malaise and subcutaneous hemorrhages, recurring at periodic intervals in patients who temporarily are amenorrheic. Weekly study of the blood shows the presence of the hormone approximately at premenstrual concentration after from three and one-half to five weeks. This type of case falls as readily into the next group to be discussed.

3. AMENORRHEAS

The significance and evaluation of the gravity of pathologic amenorrheas has been much clarified by our test.

A. *Without Cycle.*—In a certain number of amenorrheas, weekly examination of the blood over a period of five weeks has shown an entire absence of the quantity of hormone necessary to give a positive test.

B. *With Subthreshold Cycle.*—A number of amenorrheas, persisting for long periods, every four weeks show the presence of hormone in a demonstrable quantity, usually a weak reaction. Prognostically these are much more favorable than the preceding class.

C. *Self-Limited.*—In three cases of amenorrhea, the duration varying between eight months and two years, our first blood test showed the premenstrual quantity of hormone in the circulation, enabling us to predict with considerable certitude that menstruation was impending. These patients menstruated within a few days. Not only was this important from a prognostic point of view, but it serves as an absolute check on the effect of therapeutic agents. In at least one of these cases we had decided to use a potent female sex hormone preparation and, without the check up of the test, would have ascribed the subsequent menstruation to the effect of our therapy.

D. *Persistent Corpus Luteum.*—In one case in which amenorrhea persisted for six weeks, to our surprise a positive reaction was found extending over a period of fourteen days. We ascribed this to the persistence of a corpus luteum which not only subserved to produce amenorrhea but kept the hormone content at the premenstrual level.

4. NEVER MENSTRUATED

A. Of these women, two showed a cyclic variation of the hormone in the blood, showing that the ovaries were functionally active and that ovulation was taking place.

Patient 1182, who had never menstruated, though 36 years of age and somatically normal, showed a twenty-nine day cycle:

40 cc. of venous blood taken Sept. 27, 1926, = 0
40 cc. of venous blood taken 15 days later = 0
40 cc. of venous blood taken 29 days later = + 3
40 cc. of venous blood taken 35 days later = 0

B. Two did not show any cycle, the hormone never being demonstrable although repeated consecutive tests were made. Needless to say, the prognosis of the first group should be much better than that of the second.

5. MALFORMATIONS

Four individuals with absent vaginas were tested to determine their sex.[7] Without our test, a biopsy of the

gonads would have been required to determine the gender of these individuals. In three of these cases, repeated tests eventually showed female sex hormone in the circulation and the occurrence of a distinct cycle.

Case 1149 will serve as an example:

The patient, aged 22, showed undeveloped breasts, vestigial nipples, scant hair development, rudimentary vagina, uterus questionable, no gonads felt.

Blood examination showed the following:

40 cc. of venous blood, May 15, 1925, = 0
40 cc. of venous blood, 14 days later = 0
40 cc. of venous blood, 21 days later = + 3
40 cc. of venous blood, 28 days later = 0
40 cc. of venous blood, 35 days later = 0
40 cc. of venous blood, 42 days later = + 3

} 21 day cycle

The fourth patient withdrew from observation after a single negative test had been obtained. Only positive tests are of value. A negative outcome leaves the question of nonfunctioning ovaries or male sex unanswered.[9]

6. STERILITIES

The number of sterilities investigated is comparatively small, only twelve cases being available. To be considered a sterility, such patients must have functionally normal husbands and have patent tubes. Three of the patients showed a distinctly diminished amount of hormone from one to three days before the anticipated menses. In the majority of cases, however, the hormonal contents appeared normal. A much greater material will have to be studied before valid deductions can be made. There seems to be no question, however, that the sterility group contains a larger number of patients with depressed ovarian function than any other except the amenorrheas.

TABLE 6.—*Sterility*

	Number of Cases	+	±	0
20–15 days before	2	—	—	2
15–10 days before	5	—	—	5
10–5 days before	3	2	—	1
5–3 days before	1	—	1	—
3–1 days before	5	2	2	1
First day of menses	1	—	—	1
Second day of menses	3	1	1	1

7. ABNORMALITIES OF PREGNANCY

Since our technic has been fully standardized we ascribe great importance to the absence of the female sex hormone in the circulation if noted after the tenth to twelfth week of gestation. By means of this reaction we have been able to determine the death of the fetus in cases of pregnancy in which abortion has been induced by means of the roentgen-ray because of grave systemic disease. Where the pregnancy has been terminated, the hormone at once disappears from the blood several weeks before the uterus expels the products of conception. In one instance we demonstrated the failure of this method of inducing abortion by the fact that a positive reaction persisted in the blood. In an obscure case of fetal death in which the diagnosis was complicated by the presence of massive fibroids, our reaction established the diagnosis of missed abortion, which was confirmed by the eventual expulsion of the changed fetus and placenta. In an obscure case of a pelvic mass with amenorrhea, we diagnosed the probability of pregnancy at the critical period of eight to ten weeks, at which time the reaction just begins to be positive. This was an outside case in which we did not know any of the clinical observations. Operation disclosed an ectopic pregnancy of two and one-half months.

The preceding somewhat sketchy summary of our blood studies makes it evident that this test should prove of increasing value in the study of gynecologic diseases. We hope that further study will enable us to use smaller quantities of blood as well as to detect smaller amounts of the circulating hormone. To date our original technic, as first described, has proved more satisfactory than any of the modifications which we have attempted to devise.

CONCLUSIONS

The conclusions warranted by our investigations are that:

1. In women with normal sex cycle, more and more of the female sex hormone accumulates in the circulating blood until menstruation sets in.

2. With the onset of menstruation as well as with the beginning of pregnancy, the hormone disappears from the circulating blood.

3. The hormone is found in great concentration in the menstrual as well as in the postpartum blood.

4. The hormone is found in the circulating blood from the twelfth to the fortieth week of gestation.

5. In functional bleeding a majority of cases show excessive ovarian activity.

6. Functional overactivity may be demonstrated without excess bleeding ("tension") and even in the presence of amenorrhea.

7. Amenorrheas must be subdivided into (*a*) a grave type without cycle and into those with (*b*) subthreshold cycle, (*c*) self-limited with impending menstruation, and (*d*) due to persistent corpus luteum. The gravity of the condition depends on the type.

8. Women who have never menstruated may nevertheless ovulate and their sex tract undergo cyclic changes.

9. Our test, when positive, permits of the determination of sex.

10. Sterilities probably fall into two classes, the first with normal cycle, the second with depressed function. In the first group other factors besides ovarian function must be taken into account.

11. Death of the fetus after the twelfth week can be recognized by the blood test.

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9. One European investigator has reported a positive reaction with orchitic extracts. We have tested aqueous, saline and lipoid extracts as well as orchitic implants of various kinds with uniformly negative results. Loewe has obtained similar negative results.

An Outstanding County Health Department.—Los Angeles County, with its area of some 4,000 square miles, is about two-thirds the size of Massachusetts, and the total assessable wealth of its estimated population of two million, two hundred thousand citizens, is estimated at three billion, three hundred and seventy-one millions of dollars. The total appropriations for the cost of government in this county for the current fiscal year came to a grand total of practically thirty-four millions of dollars. The health and sanitation appropriations totaled $3,271,880.00, and the charities, hospitals and corrections mounted to $12,098,177.00! The Health Department of Los Angeles County was credited with an appropriation of $1,053,028.00 for the fiscal year. Endowment funds, when invested, give an annual interest return of fifty thousand dollars on each million dollars. The Los Angeles County Health Department operates, therefore, as if it were receiving the interest return on what would be an endowment of twenty-one millions of dollars! In that light the annual budget of the department certainly seems staggering. The trend of preventive medicine in community life is most significantly shown in the astounding figures which have been presented.—*California & West. Med.*, December, 1927, p. 810.

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A WORKING CLASSIFICATION OF THE CAUSES OF STERILITY *

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During the last fourteen years there have been three noteworthy advances in the field of sterility: postcoital examination, a better comprehension of metabolic factors, and the Rubin test of tubal patency. The result is first of all an increased knowledge of etiology, and in consequence more accurate diagnosis and more successful treatment.

The outline herewith presented sets forth the causes of sterility as they are understood today in the light of this recent progress. There are six major requisites of fertility; since each of them may fail of fulfilment in numerous details, the causes of sterility fall naturally into six main groups.

I have entitled this paper a working classification of the causes of sterility because it may be turned to practical use in two ways. First, a complete listing of possible causes insures that nothing will be overlooked in the investigation of cases. My associates and I have developed a routine of sterility study comprising twelve diagnostic procedures, each of which is expected to afford information about certain of the causes listed in this classification. Thus the complete study systematically covers the field of etiology, with evidence for or against every possible causative factor. Second, key numbers like those in the column at the right make it easy to record observations in such a way that at any time they are readily available for statistical analysis. This is important, for further progress will be favored by the careful study of past results.

The inclusion of certain items in this classification and the omission of others require a few words of comment.

UTERINE CAUSES

It will be noted that space is not given to uterine causes of sterility. The supracervical uterus plays a simple part in the mechanism of conception: it affords a passageway by which spermatozoa may ascend from the os internum to the ostia uterina of the tubes. The only uterine conditions which make this impossible are absence of the organ, complete atresia and pregnancy—conditions of academic rather than practical importance in sterility.

Many uterine abnormalities, not in themselves causes of sterility, are nevertheless intimately associated with conditions in other parts of the genital tract which render conception impossible. For example, pregnancy fails to occur in the infantile uterus, not because it is an infantile uterus, but because the accompanying infantile ovaries do not ovulate. Again, retroversion of the uterine body does not cause sterility, but it may be associated with such anteversion of the cervix as prevents insemination, or with congestion and inflammation of the appendages.

In asserting that there are no important uterine causes of sterility, I am using the term sterility in its strictest sense: to denote failure of conception. That miscarriage may result from uterine abnormalities is, of course, admitted. Habitual early miscarriage and sterility are, however, different things, distinct in etiology and in the treatment required. There is no great chance of confusing the two in diagnosis, for repeated early miscarriage is unlikely to happen without at least enough disturbance of the menstrual rhythm so that attention is directed to the true state of affairs.

FAULTS OF DELIVERY AND RECEPTION

It was formerly believed that in coitus the semen was deposited in the posterior vaginal vault, the receptaculum seminis, and that the spermatozoa found their way into the cervix subsequent to ejaculation.

Hühner has shown that pregnancy is most unlikely to occur unless semen is ejaculated directly into the cervical canal, or at least onto the os externum. Such semen as reaches the vagina only is useless for fertilization, since in the ordinarily acid vaginal environment spermatozoa are injured almost at once, lose much of their motility within fifteen minutes, and are all dead within the hour.

It is well known that pregnancy has many times followed vulvar ejaculation. In most of such cases, however, the vaginal chemistry and bacteriology are of the virginal type, not hostile to spermatozoa. That similar conditions do not prevail in the married woman is evidenced on a large scale by the general success which attends the use of coitus interruptus as a contraceptive measure.

The teaching that cervical insemination is a requisite of fertility at once demonstrates as causes of sterility certain faults of male delivery, female reception, or both combined. Some of these faults are obvious to patients and physicians alike; others are identified only by examination of the cervical contents post coitum.

In my experience, faults of delivery and reception are found in about 4 per cent of sterility cases. Their correction is often followed promptly by conception.

Since semen deposited in the vagina is useless for purposes of impregnation, two corollary facts may be stated. First, effluvium seminis is not a cause of sterility; indeed, it is found to occur with equal frequency in sterile and nonsterile women. Second, no method of attack on vaginal spermatozoa is in the least reliable for contraception.

TUBAL SPASM

Three years ago, I first called attention to the fact that in certain patients the tubes are permeable to gas only after the administration of antispasmodic drugs. Since then additional evidence has accumulated to show that spasm, similar to that occurring in other hollow muscular organs, is also encountered in the tubes. Roentgen-ray observations after injection of iodized oil and the study of pressure variations during gas insufflation both indicate that muscular spasm is capable of causing tubal occlusion.

It remains to be seen whether such spasm, and the occlusion resulting therefrom, offer a barrier to the ascent of spermatozoa. To settle this question, the readiest means is the therapeutic test. If in cases demonstrably spasmodic the use of antispasmodic treatment leads to conception, then the rôle of tubal spasm as a cause of sterility will be conclusively demonstrated.

RELATIVE FERTILITY

No other class of sterility cases is so interesting as the fairly large group in which neither partner shows any conspicuous pathologic condition.

It has several times happened that the members of such a pair, separating and remarrying, have both

* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Seventy-Eighth Annual Session of the American Medical Association, Washington, D. C., May 19, 1927.

proved fertile by their new mates. To explain these cases the idea of some subtle incompatibility, physical or psychic, has been advanced. Such a postulate is not required by the facts.

Its application to human beings explains much that would otherwise be obscure.

If two people, each of high fertility, are mated, pregnancy will result promptly and repeatedly, often in

REQUISITES OF FERTILITY

1. The testes must produce normal spermatozoa.
2. The spermatozoa must pass through the male genital tract unobstructed and undamaged.
3. The cervix must be inseminated at ejaculation.
4. The endocervical secretions must be favorable to spermatozoa.
5. The tubes must allow the ascent of spermatozoa and the descent of the ovum.
6. The ovaries must produce normal ova.

CAUSES OF STERILITY

				Key Numbers
1. Defective production of spermatozoa	Testicular underdevelopment			11
	Testicular underfunction	Exhaustion from sexual excess		12-1
		Depressed constitutional states	Metabolic faults of extrinsic origin	12-21
			Debility	12-22
			Intoxication	12-23
		Endocrine failure		12-3
	Testicular atrophy			13
2. Obstruction or hostility in the male passages	Obstruction in epididymides			21
	Hostility of prostatovesicular secretions	Acidity		22-1
		Viscosity		22-2
		Infection		22-3
3. Faults of delivery and reception	Intercourse lacking, or incomplete	Male faults	Malformation	31-11
			Impotence	31-12
		Female faults	Malformation	31-21
			Dyspareunia	31-22
	Intercourse without cervical insemination	Mutual maladjustment or disproportion		32-1
		Male faults	Premature ejaculation	32-21
			Hypospadias	32-22
			Stricture	32-23
		Female faults	Anteversion of cervix, caused by retroversion of uterus	32-31
			Anteflexion of cervix	32-32
			Elongation of cervix	32-33
			Descent of uterus	32-34
			Redundancy of vaginal walls	32-35
4. Hostile endocervical secretions	Acidity	Bacterial		41-1
		Nonbacterial		41-2
	Viscosity			42
	Infection			43
	Serologic hostility			44
5. Tubal occlusion	Developmental defect			51
	Inflammatory damage			52
	Muscular spasm			53
6. Defective ovulation	Ovarian underdevelopment	Infantilism		61-1
		Juvenilism		61-2
	Ovarian underfunction	Mechanical faults	Periovarian adhesions	62-11
			Thickened tunica albuginea	62-12
			Retention cysts	62-13
			Persistent corpora lutea	62-14
		Depressed constitutional states	Metabolic faults of extrinsic origin	62-21
			Debility	62-22
			Intoxication	62-23
		Endocrine failure		62-3
	Ovarian atrophy			63

Among nonsterile individuals there are now known to exist all grades and degrees of fertility, from the lowest to the highest. Not only does the grade of fertility vary among different persons, but it may alter from time to time in the same person according to a variety of circumstances. This idea of relative fertility has for years been familiar to the breeders of animals.

spite of contraceptive measures. If the fertility of a union is mediocre, either because both partners are of mediocre fertility or because one is of high fertility and the other of low, then conception may be delayed and infrequent, since in such cases a considerable element of chance is involved in the meeting between a highly fertile ovum and a spermatozoon of similar quality.

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If husband and wife are both of low fertility, the union will be sterile, even though either partner might produce offspring by a highly fertile mate. Thus low fertility, which is not in itself sterility, is an important and fairly common cause of childless marriage.

Variable fertility of this sort is nearly always a function of the sex cells. In considering the causes of sterility, it is therefore necessary to take into account all conditions which may lead to the production of relatively infertile ova or spermatozoa. Chief among such conditions are three: gonad underdevelopment, depressed constitutional states, and endocrine failure.

GONAD UNDERDEVELOPMENT

Underdevelopment of gross and obvious degree is common in the female generative organs. True infantilism is not often seen, but a large number of women show juvenilism, the persistence into adult life of prepubertal conditions. These developmental arrests are due to a transient phase of pituitary failure, less often of thyroid failure, at puberty. Later the endocrine balance readjusts itself, so that the adult individual does not suffer from any lack of internal secretion. Nevertheless, the stigmas of past endocrinopathy at a critical period remain in the form of hypoplasia of the reproductive organs.

In such cases sterility is the general rule, for imperfectly developed ovaries either do not ovulate at all, or at best produce only occasional ova of low fertility.

Gross underdevelopment of the testis is comparatively uncommon, except when the organ is undescended. In all probability, however, a histologic hypoplasia of the seminiferous tubules does occur, and accounts for the numerous cases showing persistent seminal defects which are neither explained by any conditions present in adult life nor improved by any method of treatment.

DEPRESSED CONSTITUTIONAL STATES

The penalty of complex development is easy susceptibility to harmful influences. Thus the sex cells, perhaps the most highly differentiated units in the body, are among the first to suffer from any state of constitutional depression. That they do so suffer is demonstrable in the case of spermatozoa on a mathematical scale, according to standards of number, motility and morphology.

Conditions of chronic intoxication or of general debility often lower the fertility of the sex cells. A familiar example is the combination of mental strain and physical inactivity seen in those whose work makes great demands on their nervous energy.

Most frequent among the depressed constitutional states that impair fertility are the defects of metabolism due to extrinsic causes, such as faulty diet and lack of exercise. The usual errors are excess in the quantity of food, too little exercise to insure assimilation, and a deficiency of proteins, vitamins and mineral salts. Thus there may be cellular malnutrition even in an obese patient, showing its effect in poor quality of the sex cells. Of obese, amenorrheic, sterile women a considerable number fall into this category, their trouble being protein starvation and not endocrinopathy.

ENDOCRINE FAILURE

Apart from patients in whom an endocrine failure at puberty has led to underdevelopment of the ovaries or testes, there are the patients in whom endocrine failure during adult years leads to underfunction on the part of those glands, either suppressing entirely the production of sex cells or causing such as are produced to be of low fertility.

Marked deficiency of any internal secretion is likely to bring about this result. In sterile women the primary focus of failure is located six times in the anterior lobe of the pituitary and three times in the thyroid to once in the internally secreting portion of the ovary.

Obesity and amenorrhea, so often associated with defective ovulation, are not, as many have believed, causes of sterility in themselves. They are concomitant results of the same primary condition. That condition is fundamentally a derangement of metabolism, which may come equally well from the extrinsic causes previously described, or from an intrinsic cause, a faulty endocrine balance.

MULTIPLE CAUSES

Complete study of a sterility problem often reveals two or more conditions, each of which alone would be sufficient to prevent conception.

Plural causes may be quite independent of one another. Frequently, however, they are related in such a way as to constitute a clinical entity. For example, in the chronic inflammatory pelvis one often sees polycystic ovaries, occluded tubes, adherent retroversion of the uterus with anteversion of the cervix, and hostility of the endocervical secretions.

Successful treatment must therefore be preceded by thorough and systematic investigation, taking every possibility into consideration. To accept the first discovered abnormality as the only cause of sterility leads to many therapeutic blunders. Thus it happens that I have records of thirty-two cases in which laparotomies were done for sterility on the wives of men with azoospermia.

Intelligent investigation in turn depends on a clear understanding of causation. The better the mechanism of fertility and the factors deranging that mechanism are appreciated, the greater will be the chances of success in the management of these cases at present, and the likelihood of arriving ultimately at a larger knowledge of this important problem.

475 Commonwealth Avenue.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. RUBIN, FRANK AND GOLDBERGER, AND MEAKER

DR. DONALD MACOMBER, Boston: When I looked at the classification which Dr. Meaker made, I thought to myself that he was making the matter of classification of sterility a little too mechanical, but his paper took up the question of relative fertility in great detail and presented, to my mind, one of the greatest causes we have to deal with. Any animal breeder knows well when he is dealing with certain animals that one makes a good breeder and another a very poor breeder. It is possible to classify human beings on a similar basis. With the male, we have the advantage of actually being able to see and count the sex cells themselves. With the female, down to date there has not been any such method, although Dr. Frank's paper promises to offer something by which this can be put on a statistical basis. For the past two years we have been making counts of spermatozoa in much the same way that blood counts are made, and we find the greatest variation in the fertility of different individuals. The normal count comes somewhere between 100,000,000 and 150,000,000 per cubic centimeter. We have seen individuals whose fertility was so great that the count was 300,000,000 per cubic centimeter; and, of course, on the other hand, there are many individuals whose fertility is low and in whom the count runs down as low as 100,000 per cubic centi-

meter. This gives us a way of classifying individuals on a statistical basis. Of course, that is just one element, but we find that it does give a very good indication of the fertility. We also find that the fertility of an individual as classified by this means varies according to conditions. For instance, a count made on one patient soon after an operation for acute appendicitis was about 40,000,000; three months later the count had risen to 90,000,000 without any treatment whatever. Another thing that this method shows is the advantage of treatment in the male, and it gives a very good indication of whether the treatment is succeeding or not.

DR. GEORGE G. WARD, New York: Dr. Meaker's paper is of great interest because it teaches system. Every sterility case requires a thorough analysis. It is absolutely necessary, if we are going to cover all the ground and not forget something in making a sterility study, that we have system. The chart that he has presented I am quite sure is a considerable aid in that direction. We have a sterility clinic at the Woman's Hospital under the direction of Dr. Aldridge, of my staff. All cases of sterility admitted to the hospital may be referred to this clinic for intensive study. We all recognize that the contribution made by Dr. Rubin has been a great advance. I have been greatly interested in following his work, and several years ago when he first introduced it I established a special clinic at the Woman's Hospital for tube insufflation. That is also under the direction of Dr. Aldridge. He has published an analysis of 600 cases treated by this method, and to date we have done more than 3,000 tests according to Dr. Rubin's method; in all that long series we have not had any serious casualties. That, I think, shows that the test can be used with safety if proper precautions and care are taken. A point which I consider important that Dr. Rubin brought out is that this is a scientific procedure and should be done in a scientific manner. I mean by that that the apparatus used should show the fluctuations, as they can be shown only by the mercury column, if we are to get the full value of the method. The attachment of the kymograph to the apparatus was demonstrated for me by Dr. Rubin. It records permanently and accurately the fluctuations in the mercury column which we have all observed. The question that must be definitely settled is whether the fluctuations are due to uterine contraction or tubal contractions. Dr. Frank's work is certainly a splendid advance and is something that is going to be of vast assistance to us. I want to ask Dr. Frank whether he has checked up by his method those patients who have had a persistent amenorrhea which were benefited by roentgen-ray stimulation of the ovaries.

DR. M. A. GOLDBERGER, New York: The clinical application of our method for the testing of pregnancy after the sixth or eighth week cannot be too strongly emphasized. In eighty-five patients studied, thirty were less than fourteen weeks pregnant. Of these there were nine in the first four weeks, all of whom gave negative reactions, and thirteen between four and eight weeks, nine of whom gave positive and four negative reactions. Between from eight to twelve weeks there were ten cases, all positive, and between twelve and fourteen there were six cases, all showing a positive reaction. Another clinical application of our method is in cases of threatened abortion. When a positive reaction is obtained in threatened abortion, it is indicative of an ovum still attached to the uterus, and conservative treatment therefore is indicated. On the other hand, when a negative test is obtained, the ovum is detached from the uterine wall, and conservative treatment is contraindicated. When the roentgen ray is used for the production of a therapeutic abortion, this test may also be of great help. It takes from one to six weeks before the ovum is expelled after the roentgen-ray exposure, and if the blood of such a patient is studied every week, one will find that it rapidly becomes negative after the first week. At times it may take two or more weeks, but usually it takes between two and three weeks to become negative. If it persists in being positive, one can then conclude that the pregnancy has continued to live and that the roentgen-ray treatment has failed.

DR. EMIL NOVAK, Baltimore: The experimental work on which the authors have based their views has been done on the lower animals, the sexual cycles of which present important differences from those of women. In such animals as the rat, mouse and rabbit, which have been most extensively studied, the cycle is undoubtedly dominated by the follicle. In the human being, on the other hand, the follicle is probably responsible only for the slow hypertrophic changes seen in the endometrium up to the premenstrual phase, while the latter is almost surely due to the influence of the now mature corpus luteum. When the follicle is at its maximum of development, i. e., at about the thirteenth or fourteenth day of the cycle, the endometrium is relatively undeveloped. On the other hand, when the endometrium reaches the acme of development, just before menstruation, the follicle is at a low ebb, but the corpus luteum is in full bloom. In this respect, I think that one of the diagrams shown by Dr. Frank is incorrect, in that it depicted a mature graafian follicle as characterizing the premenstrual phase. In a paper which I presented before the American Association for the Study of Internal Secretions, I presented evidence to show that in the sexual cycle of the human being the corpus luteum plays a much more important part than in that of the lower animals, in which the follicle is the dominating factor. There appears to be an evolutionary gradation of the sexual cycle demonstrable in the animal scale. In monkeys, while the follicle type of cycle is common, the human type is also not rare, as shown by Corner. In this, the follicle effect is followed by the topping off influence of the corpus luteum, so that both are important. For this and other reasons which I discussed in the paper referred to, I feel that Dr. Frank's conception of a "gestational gland" is not a happy one. It conveys the idea of a single female hormone, which I do not believe is warranted by the available evidence. It is possible that Dr. Frank may not wish to convey this view, but I believe it is the one which most readers have gathered from his papers. This statement does not detract from the value of the follicle substance tests in such conditions as doubtful sex or menstrual disorders.

DR. SAMUEL R. MEAKER, Boston: Dr. Macomber quite properly pointed out that the terms relative fertility and relative infertility find no place in the printed outline herewith presented. Sterility and fertility and the relative grades of the two are, however, the end-results of underlying causative factors, and I think that all the ordinary factors involved are represented in this outline, which is an attempt to reduce things to their simplest terms, and so to provide a basis for systematic investigation and treatment. The other point is the matter of the spasmodic tubal factor. Dr. Rubin's kymographic tracings, which I have been duplicating in a small way since I last saw him in February, demonstrate beautifully spasm of the tubal musculature. There is one other method of investigation which throws additional light on that condition. I now do all insufflations in pairs; that is to say, I do at least two on each patient. Of these two, the first is preceded by a large dose of atropine; the second is done some days later without any preliminary medication. If pneumoperitoneum is produced at lower pressure on the first occasion than on the second, I feel that an element of musculature spasm has been demonstrated. On the other hand, if the tubes are permeable at a lower pressure on the second occasion than they were at the first insufflation, there is presumably no element of spasm. A case of the latter type belongs to the partially obstructed class, and repeated insufflation makes the tubes more easily permeable by producing some alteration in mechanical conditions, such as the remedying of kinks, mucus plugs, strictures or adhesions.

DR. I. C. RUBIN, New York: As Dr. Frank has shown, these studies overlap each other and are correlated. I think that a great deal of information will be added to our knowledge of the female sex hormone from the quantitative and perhaps qualitative study also. I have been interested in checking up the function of the ovaries through the tubal manifestations in patients who had complete amenorrhea and in the preclimacteric and postclimacteric state. The results in those cases I am not prepared to speak about as yet. They suggest that there is in some cases a well marked tubal peristalsis when one would expect none, as Dr. Frank has shown in his total amorrhea cases, by serial blood examina-

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tion. The "female sex hormone" may be present in a plus three quantity or a plus four. In such a case, perhaps, one might be able to demonstrate by means of the kymograph and peruterine tubal insufflation that there are well marked fluctuations in pressure, indicative of tubal peristalsis. In some cases of the preclimacteric state in which the tubes are not occluded, the type of fluctuations that I have noted is suggestive of a subthreshold function of the ovaries, and in the climacteric or postclimacteric state in the few cases that I have seen there has also been shown the same characteristic subthreshold function. In other words, we have a clinical check-up on the diagnostic value of the "female sex hormone" and eventually on its therapeutic value, as well as on the efficacy of so-called stimulating doses of roentgen ray in cases of depressed menstrual function. I should like to take up one moment only to impress a point which Dr. Dickinson has called to my attention; namely, that in his extensive travels throughout Germany and abroad, he has noticed that the method of tubal insufflation was condemned in some clinics. The first thing that was appreciated in this work was the fact that the cases must be carefully selected. The cases that are associated with purulent secretions in the cervix and in which there are tender masses in the pelvis should be weeded out. They are a definite contraindication to the test and it is dangerous to attempt it. Dr. Dickinson has informed me that in that particular clinic, insufflation was practiced in the presence of definite pus tubes. The method has now been tried out sufficiently by many hands and in many clinics for us to estimate what it is worth. I think that we ought to pay more and more attention to careful technic, to the contraindications and to the specific indication for its use.

DR. ROBERT T. FRANK, New York: Please do not consider that I presented this first rough chart as a full confession of my physiologic beliefs. That chart was originally made for students. The idea that the human being has a corpus luteum which should be considered different does not appeal to me; because the corpus luteum, the yellow body, begins with the monotremes, which have such a short uterine gravidity, and ends with human beings. As to the correctness of applying "the rat test" to the human being, I do not know whether I understood Dr. Novak correctly, but I may say that the mouse, which happens to be the animal we use, does not react any differently in this test from the blood cells in the Wassermann test. Dr. Ward asked about the irradiation of the ovaries. As a typical instance, I had a patient who became almost maniacal before each menstruation. The menses were profuse. After consultation and debate, we decided to give her roentgen-ray treatment. There was a definite excess of hormone in her blood, and 20 cc. (instead of the usual 40 cc.) gave a strong reaction. We gave her a moderate amount of irradiation. Menstruation ceased for two months, and she felt well. Then menstruation returned and gradually the symptoms of tension reappeared and grew worse. We naturally controlled this with our blood test. Shortly after the roentgen-ray treatment, the test was negative. Then it began to increase, so that more and more hormone was found in the same amount of blood. In the same way, we use the test, as Dr. Goldberger brought out, in the checking up of cases of therapeutic abortion induced with roentgen-ray treatment, and I want to warn you that we use the roentgen ray only in cases of severe heart disease on advanced tuberculosis, or in which pregnancy for the future is absolutely contraindicated. Of course, the hormone is excreted by other channels than the uterine blood. It can be found in the urine. As to dysmenorrhea, the nervus pelvicus reacts differently, I feel confident, in these tension cases when the system is overloaded with hormone. The sex cell is by no means the only factor to be considered. I think that Dr. Meaker might have ascribed a little more importance to the uterus, although it is regarded simply as the container for the fruit, but that container is a very delicate one, even more delicate than our electric thermostats; it must be sensitized in the right fashion, and it must have the female sex hormone to insure its growth, at least up to a certain time. The placenta contains the hormone in large quantities.

Clinical Notes, Suggestions and New Instruments

THERMOMETER IN THE BLADDER*

M. L. LEVY, M.D., BROOKLYN

M. S., a white girl, aged 14, was brought by ambulance to Beth Moses Hospital, Sept. 21, 1927, to be immediately operated on for general peritonitis following acute appendicitis. An emergency operation was performed a few hours later.

The patient was very ill, and so the history, of necessity, had to be curtailed to only the pertinent facts. Two days prior to the date of admission, the patient was seized with severe generalized abdominal pains, more so in the uppermost portions of the abdomen. She vomited several times on the day of onset, and the following day. She felt feverish. The pains subsided for a time but then recurred, on the second day with increased severity, localizing themselves to the right lower quadrant. No urinary symptoms were complained of. She had never menstruated.

Physical examination revealed tenderness throughout the entire abdomen, especially in the lower abdomen. There was definite rigidity of the entire right lower quadrant. The pulse was 126, small and wiry, the temperature 100.6 F., and respirations 26. The total white cell count was 17,600, polymorphonuclears 90 per cent, lymphocytes 10 per cent. The urine showed a few white cells microscopically; otherwise it was normal.

As the diagnosis apparently, seemed clear, the necessity for operation urgent and the patient very ill, no further history or other data were obtained at this time.

The abdomen was opened through a right rectus incision, and the contents were examined. The peritoneal cavity was filled with seropurulent fluid. The omentum was adherent to the parietes of the low abdomen and pelvis. Between a distended bladder and the low anterior and lateral abdominal wall on the right side, a creamy pus escaped. An attempt to empty the distended bladder by means of a catheter through the urethra was unsuccessful, little urine coming through the catheter. The bladder was palpated to ascertain the reason, and a foreign body was felt in the bladder. This later was found to be a clinical thermometer. The general direction of this thermometer, lying diagonally across the bladder, was from left to right, from down upward, the bulb —the quicksilver reservoir portion—projecting at the right posterosuperior surface of the bladder, in a diverticulum formation. The peritoneal covering of the bladder at this projecting point was tense and stretched, and firmly grasped the bulb of the thermometer. The latter was clearly visible through the peritoneal covering of the bladder, at this point. Grossly, there appeared to be no other coverings to this diverticulum, as a result of the extreme stretching. At the very peak of this diverticulum there was a minute perforation, held closed and taut, by the firmly grasping peritoneal covering of the bladder, against the thermometer end. There was no apparent leakage, nor was there any urinary odor.

The removal of the thermometer and the closure of the bladder were now attempted. The bladder was walled off, by pads, from the rest of the abdominal and pelvic contents. The perforation was enlarged, the edges were grasped with Ellis' clamp, and the thermometer was seized. It was impossible to remove it by mere traction. Investigation revealed that the thermometer was surrounded, in its middle third, by a large phosphatic calculus, the latter firmly adhering to the bladder mucosa. The encrusted thermometer was freed by cutting into the soft phosphatic mass surrounding it, which was readily accomplished. The thermometer was removed in its entirety. Some of the phosphatic calculus, clinging to the thermometer, when shelled off, showed distinctly the figure 100 imprinted in black on it. The edges of the rent in the bladder were cauterized, and then closed with two layers of Lembert sutures.

* From the surgical service of the Beth Moses Hospital.

The appendix was small, not pathologic. However, it was covered on its anterior aspects by a plastic exudate, which extended also up and across the anterior surface of the cecum and ascending colon. The appendix was not removed. The uterus and adenexa were normal. A rubber tube, for drainage, was placed in the posterior culdesac, and the abdomen was closed. A retention catheter was placed in the bladder, through the urethra, and allowed to remain there, in situ, for three days, being opened at regular intervals to siphon urine.

Following the operation there was a progressive daily improvement. The temperature, moderately high and irregular, declined by the end of the second week. There was a concomitant improvement in the pulse and general physical condition. The tube drain was gradually shortened and removed by the end of the first week. Five days after the operation there developed a urinary fistula through the abdominal wound. This took about twelve days to clear up. By the third week the wound had almost completely healed. After the removal of the retention catheter, the patient was often incontinent and complained of dysuria. At the end of the third week she was out of bed, able to retain her urine and void voluntarily without any pain.

Several days following the operation, after pointed interrogation of the patient, further additions to the history were obtained. About six months before, April 9, 1927, while in a large hospital in New York for pleural effusion, she was given a thermometer to insert into the rectum, in order to obtain the temperature. She pushed it in quite firmly into the "vulval region." She felt that she must have made a mistake and attempted to remove it. In her frantic attempts to remove it, it quickly disappeared. She told the nurse of it, who immediately gave her a cathartic. The patient had an evacuation, and although she did not see the thermometer, the nurse told her that she must have passed it in the fecal contents. She thought no more about this incident. She had some swelling about the "vulval region" the next day, and complained of dysuria, but this soon disappeared. A week after this episode the patient was discharged from the hospital. Since that time she had had periods of dysuria, frequency of urination and incontinence. Under the treatment of her family physician for "inflammation of the bladder" she had improved and was feeling well until the condition described occurred.

1384 Eastern Parkway.

ACUTE APPENDICITIS WITH PYURIA

Malcom Thompson, M.D., Greenville, N. C.

By a microscopic examination of a catheterized specimen of urine, acute appendicitis cannot always be differentiated from acute pyelitis. Given a patient with pain in the right side of the lower abdomen, nausea, vomiting, fever and leukocytosis, the diagnosis will most likely be acute appendicitis. Should a catheterized specimen of this patient's urine contain considerable pus, the condition will probably be acute pyelitis rather than acute appendicitis. For some time I was under the impression that operation should always be withheld in patients with suspected appendicitis and an associated pyuria because of the likelihood of pyelitis being the correct diagnosis. The impression was incorrect, as appendicitis and pyuria may be present at the same time and delaying the operation because of the pyuria may possibly cause a fatal outcome. Such patients should be carefully studied and the decision for or against operative treatment must depend on clinical judgment.

In three of 200 consecutive cases of acute appendicitis in which operation was performed at the Pitt Community Hospital, there has been an associated pyuria. In these three cases, the patients were acutely and seriously ill, the urine was obtained by catheter, and pus was present in the urine in large amounts. At operation, each one had a severely inflamed appendix, two of which were almost gangrenous. To have delayed in either of these cases because of the pyuria would have been a dangerous mistake. The urines of two of the patients were studied after operation. In one the urine became free from pus on the fourth day, and in the other on the fifth day subsequent to operation. Both were free from pus when discharged from the hospital.

One may only theorize as to the cause of the pyuria. I believe that it is due to a secondary inflammation of that portion of the ureter adjacent to the appendix, the inflammation subsiding following appendectomy.

Acute appendicitis and coincident pyuria are referred to in Royster's book on appendicitis, but the more commonly used manuals of general surgery do not mention the association of the two conditions.

CYANOSIS IN INFANTS FROM NITROBENZENE*

A. M. Stevens, M.D., New York

Sept. 12, 1927, a mother brought her twin babies to the Bellevue dispensary. They were 3 weeks old and had been perfectly normal up to September 10, when it was noticed that the lips of both were deep blue. The mother was alarmed at first but was reassured to find that the babies slept and nursed as usual. September 11 was a Sunday when the dispensary was closed, so that nearly forty-eight hours elapsed before the babies were shown to the physician. The mother thought that the blueness was less marked than on the first day.

Both babies were of an ashy gray pallor all over the body, with lead-colored finger and toe nails. The lips, tongue and mucosa of the mouth were dark blue. The boy weighed 7 pounds 4 ounces (3.3 Kg.) and the girl 6 pounds 12 ounces (3.5 Kg.). No signs were detected in the lungs or heart, the temperatures were 99.6 and 98.6 F., but the pulse rate was rapid, 154 and 160, and the respirations 36 and 40 a minute. Otherwise the reactions and behavior of the babies did not show anything abnormal.

The onset of so marked a symptom as this extreme cyanosis in both twins without other physical signs suggested strongly the effect of some external agent. They were breast fed and the mother was certain that she had not taken any strong drug like acetanilid, which might appear in her milk. Exposure to aniline or nitrobenzene would bring about just this clinical picture. The mother was first asked whether any shoe dye had been used in the home: she was sure there had never been any in the house. But as nitrobenzene compounds have a very powerful odor, the question was put, "Did you use any strong-smelling stuff just before the babies turned blue?"

Then the story came out. September 9, the father brought home from his place of work a bottle of "disinfectant" which he poured on the edges of a mattress in the hope of killing off the bedbugs.

The odor was very strong and gave the mother a headache but she did not hesitate, half an hour later, to put the babies on this mattress for the night. There they lay for eleven hours, but fortunately the window was wide open at the foot of the bed. Next day the blueness was first noticed, but the babies were out in their carriage nearly all the time.

In the dispensary, blood was drawn from the babies and this gave a positive test for methemoglobin in each case. A tentative diagnosis was made of nitrobenzene or aniline poisoning and the mother was sent home to bring a sample of the disinfectant fluid if any remained. This was brought to the laboratory and proved to contain nitrobenzene.

Both babies lost their cyanosis gradually over a period of eight days. The experience seems not to have done them any serious harm, and both are progressing normally. It is interesting to note that they were not in contact with the poison and absorbed the nitrobenzene only by breathing the fumes. Adults exposed in the same room suffered intense headache without cyanosis. Probably an infant is susceptible in direct proportion to his rapid metabolic rate.

It is only fair to say that the fluid, "Creco," is not sold as an insecticide. It is used as a deodorant in toilets, etc., and was brought into the home by an unfortunate misunderstanding.

55 East Seventy-Sixth Street.

* From the Department of Diseases of Children, Columbia University, and the Children's Medical Division, Bellevue Hospital.

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Council on Pharmacy and Chemistry

NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

W. A. PUCKNER, SECRETARY.

BACILLUS ACIDOPHILUS MILK-HERMES.—A whole milk cultured with *B. acidophilus*. It contains not less than 200 million of viable organisms (*B. acidophilus*) per cubic centimeter at the time of sale.

Actions and Uses.—See Lactic Acid-Producing Organisms and Preparations, New and Nonofficial Remedies, 1927, p. 216.

Dosage.—For adults the contents of one bottle (950 cc.) in divided doses daily. To overcome the natural tendency to gas formation at first, it is best to begin with 500 cc. in divided doses and increase to the full dose in two or three days. Lactose may be administered with the milk when indicated. When used for infant feeding, from 250 to 500 cc. of the milk diluted with water that has been boiled and cooled is advised. Bacillus acidophilus milk-Hermes is marketed in bottles containing 950 cc. (1 quart); it must be kept in a cool place and should be used prior to the date stamped on the cap.

Manufactured by the Hermes-Groves Dairy Co., Pittsburgh, Pa. No U. S. patent or trademark.

PHANODORN.—Cyclobarbital.—Cyclohexenyl ethyl barbituric acid.—Δ′-cyclohexenyl ethyl malonyl-urea.—2,4,6, trioxy-5-cyclo-hexenyl-ethyl-pyrimidin.—$CH_2CH_2CH_2CH:C(C_6H_5).CNHCO.CO.NHCO$. Phanodorn differs from barbital (diethyl-barbituric acid) in that one of the ethyl groups of barbital is replaced by a cyclohexenyl group.

Actions and Uses.—The actions and uses of phanodorn resemble those of barbital, but it is more than twice as toxic as barbital and the therapeutic dose is correspondingly smaller. It is eliminated more rapidly than barbital; hence the action is not so lasting. This is an advantage when it is used merely to put one to sleep where sleep will then continue without its further action. It is used mainly for its sedative action in nervous insomnia, neurasthenia, psychoses, and various types of insomnia. It probably augments the action of analgesics such as amidopyrine, as other barbituric acid derivatives do.

Dosage.—For the mildest type of simple insomnia, 0.1 Gm. (1½ grains) or ½ tablet. Intractable or obstinate insomnia, from 0.2 to 0.4 Gm. (3 to 6 grains) or one to two tablets. The larger dose should not be repeated within less than twelve hours. The average dose is 0.2 Gm. (3 grains), or one tablet.

Manufactured by the Bayer Company, Inc., Rensselaer, N. Y. (Winthrop Chemical Company, Inc., New York, distributor). U. S. patent applied for.

Phanodorn occurs as a white, crystalline, odorless powder, with a bitter taste; readily soluble in alcohol, about 1 in 5, and ether, about 1 in 10; very slightly soluble in benzene and cold water. A saturated aqueous solution is acid to litmus paper. It melts at 171-176° C.

Dissolve 0.1 Gm. in 1 cc. of sulphuric acid: the liquid assumes a yellow color, changing quickly to orange, and finally to red. Place 0.3 Gm. in a 25 cc. glass stoppered cylinder, add 1 cc. normal sodium hydroxide solution and 5 cc. water, shake the contents for one minute, filter through paper and divide into two portions: the solutions yield a white precipitate with 1 cc. of mercuric chloride solution, soluble in 5 cc. of ammonia water; the solution yields a white precipitate with 2 cc. of silver nitrate solution, soluble in 5 cc. of ammonia water. Boil 0.5 Gm. with 5 cc. of a 20 per cent sodium hydroxide solution: it is decomposed with the evolution of ammonia.

Boil 0.5 Gm. with 50 cc. of water for two minutes; no odor develops; cool and filter: separate portions of 10 cc. each of the filtrate yield no opalescence with 1 cc. of diluted nitric acid and 1 cc. of silver nitrate solution (*chloride*); no turbidity with 1 cc. of diluted nitric acid and 1 cc. of barium nitrate solution (*sulphate*); no coloration or precipitation on saturation with hydrogen sulphide (*salts of heavy metals*).

Incinerate about 1 Gm. accurately weighed: there is not more than 0.01 per cent residue.

Dissolve about 0.5 Gm., accurately weighed, in 25 cc. of previously neutralized alcohol, dilute with an equal volume of water and titrate with tenth-normal sodium hydroxide solution using thymolphthalein as an indicator: the amount of tenth-normal sodium hydroxide solution consumed corresponds to not less than 98.5 per cent nor more than 101.5 per cent.

REPORTS OF THE COUNCIL

THE COUNCIL HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORTS.

W. A. PUCKNER, SECRETARY.

Articles Not Acceptable

DESICCATED PARATHYROID GLAND PREPARATIONS OMITTED FROM N. N. R.

The general article Parathyroid Gland, in New and Nonofficial Remedies, 1927, contains the following statement concerning preparations of the desiccated gland designed for oral use: "The reports of success after oral therapy lack any conclusive evidence that this was dependent upon the use of the gland. No proof has been brought forward that the one definite effect that can be referred to the parathyroid gland (maintaining or raising the calcium concentration of the serum) has been produced by parathyroid preparations taken by mouth. To ascribe to the oral administration of parathyroid preparations improvement in conditions that are not definitely known to depend upon parathyroid disease, or deficiency, is illogical and misleading."

The Council has become increasingly dubious as to the efficacy of desiccated parathyroid preparations for oral administration, and in 1926 voted to omit all such preparations with the close of 1927 unless in the meantime evidence should develop to show that they were effective. No such evidence has been brought forward. On the contrary, a consultant of the Council reports experiments in which he tested out a commercial desiccated parathyroid preparation by administering it orally to normal and parathyroidectomized animals as a prophylactic or curative agent. In neither case, he reports, did the desiccated gland produce the slightest effect on the clinical course of the tetany, nor did it prevent the onset of tetany when given prophylactically. Some dogs of 10 Kg. weight received as much as 45 Gm. of the preparation a day; but even in this large dosage it was found to be entirely inert. The consultant points out that this is not conclusive evidence against a possible activity when administered in even smaller doses to the human being; but he greatly doubts whether it has any effect on the human being, since parathyroid extract-Collip affects the blood calcium of dogs and man in equal degree.

Hjort and Eder (THE JOURNAL, May 7, 1927, p. 1475), reporting on a case of strumiprivous tetany treated with various parathyroid preparations, among them being desiccated parathyroid substance administered orally, state that the desiccated gland substance orally administered in doses of 166 times the ordinary therapeutic dose failed to influence the blood serum calcium of their patient.

In view of the available evidence, the Council directed the omission of all the accepted brands of desiccated parathyroid gland: Desiccated Parathyroid Gland-Armour, Parathyroid Gland Desiccated-P. D. & Co., and Desiccated Parathyroid Substance-Wilson.

ASEPTONES NOT ACCEPTABLE FOR N. N. R.

Under the noninforming but therapeutically suggestive name "Aseptones," the Scent-Ets Company, Brooklyn, markets a mixture stated to have the following composition: menthol, 0.40; salicylic acid, 2.00; sodium chloride, 60.00; zinc sulphate, *dried*, 65.00; alum, *dried*, 65.00; boric acid, granular, to make 500.00; tincture of cudbear, 2 cc. Physicians are supplied with samples of this mixture in the form of powders wrapped in wax paper, fifteen in a box, with the information that the retail price is seventy-five cents. The preparation is referred to as "the astringent and antiseptic Douche Powder," and it is stated that "This formula has been used by a well known specialist in women's diseases with great success for many years. . . . One powder is the required quantity for one douche." The ingredients are named in the advertising letter to physicians, but a quantitative formula is not given either on the trade package label or in the letter, nor is the weight of each powder stated.

The Council finds "Aseptones" unacceptable for New and Nonofficial Remedies because it is an unscientific mixture, marketed under a noninforming, therapeutically suggestive name, and without declaration of its quantitative composition.

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SATURDAY, JANUARY 14, 1928

SUNSHINE, SKYSHINE AND RICKETS

Pediatricians regard rickets as a universal disorder. Hess and Weinstock[1] have recently remarked that although it occurs with by far the greatest frequency among infants and young children in the temperate zones, no country seems to be spared and no climate to confer absolute immunity. Ever since the demonstration that a condition analogous to human rickets can be produced experimentally in animals by subjecting them to certain types of restricted diets, the disorder has been regarded by many clinicians as essentially a deficiency disease in the modern sense. The rations that bring about the pathologic condition are characterized by peculiarities in the intake of phosphorus and calcium, notably a relative shortage of either of these elements, along with a lack of the food factor now commonly designated as vitamin D. Correction of the abnormal inorganic food intake and a supply of vitamin D are among the corrective or prophylactic measures at present applied to the problem of human rickets.

As human milk or that of some animal forms the almost universal diet of infancy, it has been surprising to learn that rickets can occur so frequently. One expects milk above all foods to embody the essentials for good health and development during infancy. Other deficiency disorders, such as scurvy, beriberi, xerophthalmia and pellagra, tend to be averted by increasing the intake of milk. Hess and Weinstock have pointed out, however, that in regard to rickets the situation is the opposite—instead of susceptibility being in inverse ratio to the consumption of milk, it is rather in direct ratio; for example, if an infant, aged 6 months, is given a pint of milk a day, it is less apt to develop rickets than if it consumes a quart a day. It is evident, they add, that from a nutritional standpoint there must be an essential etiologic difference between rickets and these other disturbances.

Part of the difference is explained by the comparative poverty of milk in the antirachitic factor, vitamin D, of which even the highly prized human milk contains only a small amount. Consequently any high protective value of human milk in infantile rickets cannot be ascribed to its content of the antirachitic factor. It may be that human milk induces a reaction of the chyle, which is comparatively favorable for the calcium and phosphorus balance. Nature appears not to have been bountiful in the provision of antirachitic products. Of all the known vitamins, none is so poorly distributed among foods as the antirachitic factor. It is entirely absent in the cereals and in fruits. Hess and Weinstock have reminded us that some years ago, when a distinction had not been drawn between the antirachitic factor and the fat-soluble vitamin A, it was thought that vegetables, more particularly the leafy vegetables, were of protective value in rickets. Such, however, is not the case. From a clinical dietary standpoint it should be thought of as existing in eggs, as well as in liver and to a lesser extent in some of the animal fats.

The foregoing considerations make it seem probable that the human infant depends in no small degree on some other environmental influence to protect it against improper development of the skeletal system. Less than a decade ago such a factor was discovered in sunshine with its potent rays in the ultraviolet region.[2] Hess and Weinstock have therefore ventured the hypothesis that the nursing infant is not completely adjusted to living conditions in the temperate zones, and that rickets is its pathologic reaction when deprived of the solar irradiation which is an essential complement to its diet.

The effectiveness of the available sunshine depends not only on the duration of the exposure but also on variations produced by the absorption of the active rays by the earth's atmosphere under different conditions. The short ultraviolet rays are readily cut off by the smoke, dust and moisture in the atmosphere. It is therefore evident that they will be markedly reduced in the winter and in the early morning and late afternoon, when the rays of the sun pass through a greater distance of atmosphere than when the sun is high in the sky. There have already been numerous measurements of the diurnal and seasonal variations in the solar irradiation in various regions. These have now been supplemented by the attempts of Tisdall and Brown[3] of the Hospital for Sick Children in Toronto to correlate the seasonal variations directly with the relief of experimentally produced rickets in animals. Toronto is in the same latitude as many of the thickly populated Northern states. The average number of hours of

1. Hess, A. F., and Weinstock, Mildred: A Study of the Antirachitic Factor in Human and in Cow's Milk, Am. J. Dis. Child. **34**: 845 (Nov.) 1927.

2. The Photo-Activity of Substances Curative of Rickets—A Remarkable Discovery, editorial, J. A. M. A. **83**: 1169 (Oct. 11) 1924; Light and the Effects of Vitamin A, ibid. **86**: 1699 (May 29) 1926.

3. Tisdall, F. F., and Brown, Alan: Seasonal Variation of the Antirachitic Effect of Sunshine, Am. J. Dis. Child. **34**: 721 (Nov.) 1927.

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sunshine there each day for three years, recorded by the month, ranged from 1.9 for December, the lowest figure, to 9.5 in July, the highest. The average percentage of maximum sunshine from 11 a. m. to 1 p. m. —the period during which infants can be most conveniently exposed—showed a similar increase from December to July. The sun's rays during December, January and February in the latitude of Toronto produce a slight but definite antirachitic effect on rats fed on a rachitogenic diet. A sharp increase occurs in the antirachitic effect of sunshine about the first of March. The antirachitic effect of sunshine in April and May is approximately eight times as great as in December, January and February. It would appear that the increase in the antirachitic effect of sunshine in March, April and May is due not so much to an increase in the amount of the ultraviolet rays of the length present in the sunshine in winter as to the presence of rays that are shorter than those found during the winter. The antirachitic effect of skyshine (reflected rays from the sky and clouds) is approximately from one half to two thirds as great as that produced by what is ordinarily termed sunshine (rays from the sun plus the reflected rays from the sky).[4]

Ordinary window glass is impervious to the antirachitic rays of sunshine. Consequently much effort has been devoted of late by glass manufacturers to the production of glasses that will transmit some of the rays in the region of the ultraviolet. Reports on some of the available products have already been published in THE JOURNAL.[5] Those now marketed are only partly pervious. The studies of Tisdall and Brown[6] on rachitic animals show anew that no antirachitic effect, or at the most a negligible effect, is produced by the sun's rays through ordinary glass. The antirachitic effect of skyshine through the special glasses is slight—in fact, almost negligible—except immediately adjacent to the window. Similar results were obtained with rays through an open window covered with ordinary fly screen. In order to obtain much benefit from rays through an open window or a window glazed with special glass it is necessary to receive the direct rays of the sun. Tisdall and Brown believe that the use of special glass during the winter months is probably of little value. Its use in the latitude of Toronto is justified from about the first of March on, as the inclement spring weather prohibits the exposure of patients to the sun's rays, which at that time have a great antirachitic effect. By means of this glass, these antirachitic rays can be utilized.

4. Tisdall, F. F., and Brown, Alan: Antirachitic Effect of Skyshine, Am. J. Dis. Child. **34**: 737 (Nov.) 1927.
5. Report on Window Glass Substitutes, J. A. M. A. **88**: 1563 (May 14) 1927. Sheard, Charles: Ultraviolet Radiation and Its Transmission by Various Substances, ibid. **88**: 1315 (April 23) 1927. Bundesen, H. N.; Lemon, H. B.; Falk, I. S., and Coade, E. N.: Ultraviolet Radiation from Sunlight and Incandescent Lamps, ibid. **89**: 187 (July 16) 1927.
6. Tisdall, F. F., and Brown, Alan: Antirachitic Value of the Sun's Rays Through Various Special Window Glasses, Am. J. Dis. Child. **34**: 742 (Nov.) 1927.

PULMONARY ASBESTOSIS

Apparently the first case of pulmonary asbestosis reported was in 1924. W. E. Cooke[1] has just made available the record of a woman who began to cough soon after she started work in an asbestos factory at the age of 13 years. Her general health did not suffer until she was 26. Five years later she was totally incapacitated and she died at 33. Her complaints had been cough, dyspnea, expectoration and lassitude, and the physical signs those of fibrosis and cavitation of the lungs. Postmortem examination of the patient's lungs[2] revealed diffuse interstitial pneumonia, chronic bronchitis, some empyema, anthracosis and extensive tuberculosis. Certain foreign bodies were unique. They were found in the alveoli, bronchi, bronchioles and interstitial fibrotic areas and apparently were neither of vegetable nor of animal origin. The hypothesis advanced is that these bodies are portions of asbestos fibers in the process of alteration and absorption by hydrolysis, either by direct chemical action or by enzymes. The question remains as to whether the fibrosis was the result more of tuberculous infection or of the presence of asbestos. Considerable fibrosis, however, has been found in one case without apparent tuberculosis.

Industrial dusts have been the objects of widespread research. In view of the fact that asbestos has been in use since five centuries or more before the time of Christ, it seems strange that it has not attracted attention. Asbestos is a silicate and is associated with other substances in the proportions given by Cooke as follows:

	Italian Fiber	Canadian Chrysotile
Silica	40.30	40.87
Magnesia	43.37	41.50
Ferrous oxide	0.87	2.81
Alumina	2.27	0.90
Water	13.72	13.55

Microscopically, asbestos consists of translucent glistening fibers, on the one hand; opaque angular particles and minute black granules, on the other. In the process of manufacture, much dust is generated, particularly in carding, and this dust is made up of the angular particles and black granules mentioned. Few of them appear in the finished product. Analysis shows:

	Per Cent
Finished article: Iron (as ferrous oxide)	0.1
Crude raw material: Iron (as ferrous oxide)	2.81
Dust from carding room: Iron (as ferrous oxide)	18.4

"From these results it appears conclusive that the blackened brittle parts of the asbestos fiber are the iron-containing portions—the bugbear of the manufacturer, the cause of 'dust' and a danger to the health of workers in the process of manufacture."

Although Cooke's case is only the second reported, many other cases seem to have occurred. One patient, for instance, who had worked in a carding room for ten years before his admission to a hospital said that

1. Cooke, W. E.: Pulmonary Asbestosis, Brit. M. J. **2**: 1024 (Dec. 3) 1927.
2. McDonald, Stuart: Histology of Pulmonary Asbestosis, Brit. M. J. **2**: 1025 (Dec. 3) 1927.

he was the only survivor of ten men who had started work with him. Conditions are better now, for modern factories are equipped with devices for removing the dust. Nevertheless, asbestosis, because of its dangers and its unique pathologic features, deserves more attention than it has had.

FOREIGN OBJECTS IN THE CIRCULATION

The protective devices at the command of the body are remarkable and varied. They help to avert disaster and sometimes death under conditions that would tax the resources of the most ingenious physician to the utmost if his assistance alone were depended on to devise relief. Some of the mechanisms on which the organism depends involve chemical reactions. Thus, acids and alkalis tend to become neutralized and consequently less harmful. Toxic organic products, whether introduced from without or produced endogenously, may be oxidized, conjugated or otherwise altered chemically so that the resulting compounds are more readily tolerated and eliminated. Some substances, like certain of the heavy elements, may become innocuous through deposition in tissues. The outcome in all these typical instances tends to result in diverting danger.

There are other protective reactions that depend almost entirely on mechanical effects. This applies to the disposal of foreign materials, particularly such as are chemically inert and insoluble in the body fluids. Metallic pieces somehow manage for the most part to traverse the alimentary canal without serious injury to it. The swallowed open safety pin has given many a mother well justified worries until it emerged without detriment to the unsuspecting infant that ingested it. Accidents occasionally introduce metallic particles not only into the soft tissues but even into the blood stream. More than one bullet or projectile fragment has entered a large vein and gradually proceeded along the path of the vessels. Where does it go?

A review of the literature by Warthen [1] has left him with the impression that wandering foreign bodies in the venous circulation are carried by the blood stream to the heart, where they are kept in motion by the churning action of the heart or become entangled in the chordae tendineae of the right ventricle and gradually embedded in the endocardium. No mention is made of foreign bodies reaching the lungs. In his own studies at St. Elizabeth's Hospital, Richmond, Va., to determine the course taken by foreign bodies in the venous circulation and their ultimate lodging place, objects of various sizes and shapes were inserted in the veins of a series of animals. These investigations showed clearly that the foreign objects within the lumen of a normal vein of a dog are carried by the blood stream toward the heart. This migration may take hours or days, but eventually these wandering bodies reach the heart. It was surprising to learn further, however, that the majority of these objects do not remain in the heart but are pumped into the pulmonary artery and lodge in the lungs, where they produce infarcts with apparently little disturbance to the pulmonary circulation. The presence of these foreign bodies within the lungs appears to cause little discomfort. Abscess of the lungs rarely occurred. Apparently sterilized foreign objects in the venous circulation do little harm to the heart or lungs, and unsterilized objects which are smooth and symmetrical rarely cause infection. Unsterilized, irregularly shaped bodies, as nails or fragments of nails, are most dangerous and give rise to abscesses.

It will come as a surprise to learn from Warthen that it is possible for objects to pass from the venous to the arterial circulation, this transition probably occurring in the lungs, without leaving any macroscopic evidence of pulmonary injury. He notes, as others have observed, that the smaller, more symmetrical and lighter objects in the venous circulation tend to remain in the heart, while the larger, more irregular and heavier bodies are carried into the lungs. Foreign bodies that remain in the heart appear to lodge near the apex of the right ventricle at the base of the chordae tendineae. As this is the most accessible region of the heart in man, the newly developed possibilities of intracardiac surgery may be requisitioned whenever foreign objects thus lodged demand removal.

1. Warthen, H. J.: Fate of Foreign Bodies in Venous Circulation, Arch. Surg. **15**: 712 (Nov.) 1927.

Current Comment

THE DANGERS OF ULTRAVIOLET RAYS

The tendency of therapeutic methods to be adopted and discarded in great waves of popularity and forgetfulness has never been so completely manifested as in the current attention given to the use of physical therapeutic methods, particularly the ultraviolet ray. Not only do barber shops swindle prospective victims of baldness with incandescent lamps colored purple, not only do electrical corporations sell, as ultraviolet ray devices, contraptions delivering hardly any ultraviolet radiation at all, but some manufacturers of apparatus actually delivering ultraviolet rays of potency endeavor to place these devices wherever a sale can possibly be made. Regardless of the fact that practically every method in medicine that may do good can also do harm, these machines are being sold to bath institutes, swimming pools, massage parlors, beauty parlors, clubs, barber shops and innumerable other businesses in which medical supervision is certainly not probable, indeed, hardly possible. The sales are made notwithstanding the fact that scientific literature has already revealed that the rays may in some instances depigmentize or bleach the skin, that they possess dangerous effects for the eyes, that some people who do not tan

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easily are exceedingly poor subjects, that persons with a tendency to pellagra develop serious skin symptoms, that persons with fever tend to do extremely poorly under the use of the rays, that persons with low blood pressure react sometimes with serious symptoms, that persons with early tuberculous conditions may be greatly harmed, that menstruation in women constitutes a contraindication to the use of ultraviolet rays, and that there are innumerable records of severe dermatitis, multiple keratoses and fixed macular pigmentation following overexposure to ultraviolet rays in persons who are unduly sensitive. Moreover, the rays are being advised as useful in a vast number of conditions for which the scientific evidence is extremely slim. Scientific medicine knows no panaceas, no therapia magna, no theriacs. It recognizes in many physical energies, in drugs, and even in faith healing certain powers of definitely limited application as demonstrated by scientific evidence. It must continue to deprecate the uncontrolled use of such agencies in the hands of those without scientific knowledge and in such manner as may result in serious harm.

A FLIER IN ERGOT?

A number of medical journals, including the official organs of various state medical associations, have received a brief note from one Manuel De Castro, asking for the lowest rates on certain advertising copy. De Castro uses the trade style, "Confidential Trade Information Bureau," and does business from a post office box in Closter, New Jersey. Prominently printed on De Castro's stationery, in large black-faced type, is the statement that Dr. Henry H. Rusby is the "Consulting Editor." The advertisement submitted by De Castro was a serious charge against the United States Department of Agriculture, to the effect that the enforcement officers of that department have been and are permitting substandard and impure ergot and other drugs to be entered into the United States and used in the manufacture of fluidextracts which are not up to U. S. P. standards. The Department of Agriculture, of course, needs no defense from the medical profession. It is sufficient to say that there is not the slightest justification for the charges made by Manuel De Castro or his Confidential Trade Information Bureau. Just what are the motives back of this campaign, we do not know. That either De Castro or his Confidential Trade Information Bureau will pay thousands of dollars for advertising space in medical journals for the nominal purpose of protecting the public against substandard drugs is a thesis so fantastic as to arouse the risibilities. It is a well known fact in drug circles that within the past few months there has been a highly speculative movement in the ergot market, and at least one responsible drug journal asked whether or not there was a "corner" in ergot. Last September, the stock market for ergot advanced in a few days from 85 cents a pound to $1.75 a pound. The journal *Drug Markets* reported editorially a few days ago that the end of the speculative movement in ergot is near, if it has not already arrived, and that the attacks on the Department of Agriculture "are regarded as the last gasps of the speculators who saw defeat staring them in the face." Who is De Castro? The files of the American Medical Association show that, in 1919, Manuel De Castro was doing business under such trade names as "Acidulated Drug Company," "De Castro-Mills Company" and "Acetyl Chemical Company." Under the name Acidulated Drug Company, De Castro circularized physicians, urging them to prescribe his product "Acetilum Acidulatum" in the place of aspirin. He offered to see to it that all doctors who would promise to push his "patent medicine" should receive a monthly check representing 10 per cent of the value of the gross amount sold—whether by prescription or "over the counter." As Manuel De Castro put it: "Our list will be confidential . . . Remittance will be made monthly. The more sales THE LARGER YOUR CHECK."

EXTRACTION OF TEETH

Too many teeth are extracted without clinical or pathologic justification. Two opposing conditions are constantly present: First, all infection in the mouth must be eradicated; second, teeth should not be extracted if the infection can be otherwise eliminated. Discussion of the relationship of tooth infection to certain systemic diseases is, of course, no longer necessary. It is self-evident that all sepsis and pathogenic foci in the mouth should be removed. Success in this field demands more frequent consultations between the dentist and the family physician. The physician should not peremptorily order one or more teeth extracted, nor should the dentist extract the teeth of a person who is found by questioning to be under the care of a physician or in need of medical care, without consulting with the physician who has examined the patient. Too many instances are now on record (and probably the reported cases represent only a small minority of serious conditions following the extraction of teeth) of dental and medical thoughtlessness in the extraction of teeth in more or less serious conditions. Three instances of death following soon after the extraction of teeth were recently reported by Buckley.[1] The removal of teeth is a surgical procedure, though generally a minor one, that requires preoperative cleanliness, skilled technic and, if there is infection and suppuration, careful and untiring postoperative care. A tooth should generally not be removed until a roentgenogram has been taken and commented on by a skilled roentgenologist. The gums of a patient with pyorrhea should rarely, if ever, be punctured for the injection of procaine hydrochloride or any other substance, as these punctures offer absorbing surfaces for the bacteria already in the mouth. The surgical treatment of a septic mouth after operation should be the same as that of any other part of the body that is septic. The necessary extraction of septic teeth will not cause death, but the neglect of medical and surgical care of the patient associated with any surgical operation may do so.

1. Buckley, R. C.: Necropsy Reports on Persons Dying Shortly After the Extraction of Teeth, J. A. M. A. **89:** 1776 (Nov. 19) 1927.

Association News

THE MINNEAPOLIS SESSION

Exhibit on Fractures in the Scientific Exhibit

At the request of the Committee on Scientific Exhibit and the Board of Trustees, the special exhibit on fractures was continued for the 1928 session. The Cooperative Committee on Fractures, appointed by the Section on Surgery, General and Abdominal, and the Section on Orthopedic Surgery, is composed of the same personnel as last year; namely, Nathaniel Allison, M.D., Boston; William Darrach, M.D., New York, and Kellogg Speed, M.D., Chicago. This committee announces the following as members of the Advisory Committee: Drs. Charles L. Scudder, Emmet Rixford, F. J. Cotton, William L. Estes, Sr., George W. Hawley, James M. Hitzrot, William S. Baer, Frank R. Ober, Dallas B. Phemister, M. L. Harris and M. S. Henderson.

The plans of the committee for the exhibit on fractures at the Minneapolis session comprise an exhibit of practical interest to practitioners on the following fractures:

1. Fracture of the clavicle.
2. Supracondylar fracture of the humerus.
3. Fractures of the leg.
4. Fractures at the ankle.
5. Plaster-of-paris bandages:
   (*a*) How to make them.
   (*b*) How to store them.
   (*c*) How to use them.

The committee has secured the services of seventy physicians who will give continuous demonstrations throughout the entire meeting daily 9 to 1 and 2 to 5. The exhibit arrangements will be similar to those carried out last year, including the cooperation of the medical department of the U. S. Army. In each booth the demonstrators will have available a living model and necessary appliances for treating the fractures specified. There will be in addition some special exhibits of interest to the general practitioner.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ARKANSAS

Dr. Garrison Reelected.—Dr. Charles W. Garrison was reelected state health officer at a meeting of the state board of health, Dec. 7, 1927; Dr. Garrison has held this position for thirteen years.

Society News.—Dr. Henry B. Hull, Mammoth Spring, addressed the Craighead County Medical Society, Dec. 1, 1927, Jonesboro, on "Heredity." A committee was appointed to review and study the principles of medical ethics as advocated by the American Medical Association, and to make recommendations as to their adoption as by-laws of the society. Dr. Homer A. Stroud, Jonesboro, was elected president of the society for 1928.

CALIFORNIA

Hospital Changes Name.—The Hillcrest Hospital, Oakland, has changed its name to the Peralta Hospital, Inc., on account of the likelihood of confusion of its former name and that of another hospital in the community. The new name is derived from the name of the old Spanish grant on which the hospital is located.

No Deaths from Diphtheria in Three Years.—Not one death from diphtheria has occurred in San Joaquin County for three years, according to the state department of public health. An intensive plan of diphtheria control has been carried out there for several years; in many schools throughout the district every child has been immunized. The county health officer is Dr. John J. Sippy, Stockton.

Personal.—At a regular tournament of the California Golf Association at Hollywood, Dec. 7, 1927, Dr. Lewis B. Morton made the low gross score in class A and Dr. Charles M. Hensley the low gross in class B.——Dr. Donald C. Fowler has been appointed city health officer of the city of Exeter, succeeding the late Dr. John C. Paine. Dr. Ottiwell W. Jones has been appointed health officer of San Anselmo in Marin County. Dr. Samuel L. Benson has been appointed health officer of Barstow in San Bernardino County.

Professor d'Herelle to Lecture at Stanford.—The next series of Lane Medical Lectures at Stanford University School of Medicine, San Francisco, will be given in October, 1928, by Prof. F. d'Herelle, Directeur du Service bactériologique du Conseil sanitaire, maritime et quarantinaire at Alexandria, Egypt, on filtrable viruses or the bacteriophage. Dr. Thomas Wingate Todd, Henry Willson Payne professor of anatomy, Western Reserve University School of Medicine, Cleveland, lectured at Stanford University School of Medicine, San Francisco, Dec. 3, 1927, on "Study of Human Alimentary Movements," and Dr. Corneille Heymans of the University of Ghent, Dec. 7, 1927, on "Contributions to the Physiology and Pharmacology of the Cardio-Inhibitory and Respiratory Centers."

DISTRICT OF COLUMBIA

Society News.—At the annual meeting of the Medical Society of the District of Columbia, Washington, recently, Dr. Oscar Benwood Hunter was elected president; Drs. Robert Y. Sullivan and Louise Taylor Jones, vice presidents, and Dr. Coursen B. Conklin, reelected secretary.

New Building for Physicians and Dentists.—Plans have been announced for the erection of a modern eight-story office building for the use of physicians and dentists in Washington, to be called the Columbia Medical Building and to be located at Nineteenth and Eye streets, N. W. Pending the incorporation of the company, Dr. Charles Stanley White has been selected temporary head of the organization. He states that the estimated cost of the building will be $750,000, and that Lee Paschall, Richmond, Va., is to be the builder. According to Dr. White, 125 physicians and thirty dentists will occupy space in the building.

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ILLINOIS

Life Down State and in Chicago.—The state health director, Dr. Isaac D. Rawlings, has pointed out that only 16.9 per cent of persons who died in Chicago last year reached their seventieth birthday, while 31.5 per cent of those who died down state were in that age group. Similar conditions are said to prevail in other large cities. The statistics for 1924 indicate that only 24.5 per cent of the total mortality in New York occurred among the persons of 65 years and older, while for the same year 25 per cent of the total mortality in Chicago and 28.5 per cent in St. Louis was among persons in that age period. In Chicago, 19 per cent of all deaths among females were of those past 70, while only 14.9 per cent of the total number of males dying had reached that age. Down state the females who had passed 70 accounted for 33.5 per cent of the mortality of that sex, while the males of that age group accounted for about 30 per cent of the total. In the state at large the mortality of women above 70 constituted 27 per cent of the total female deaths, while men of that age accounted for only 23 per cent of the total male mortality. Another way of saying the same thing, Dr. Rawlings notes, is that on the average women live about two years longer than do men.

Chicago

Correction—Dr. Falk Resigns from Health Department.—THE JOURNAL, Dec. 31, 1927, published a news item to the effect that Isidore S. Falk, Ph.D., associate professor of bacteriology at the University of Chicago, had turned in his resignation to Dr. Arnold H. Kegel, new commissioner of health, at the latter's request. Dr. Falk writes:

> I am not certain just to whom this does most injustice, but the fact in the case is that my resignation was not turned in at Dr. Kegel's request, but of my own volition, at my discretion, and under the press of an immediate circumstance which was in a measure of my own creation. Dr. Kegel's plans and procedures and those of his advisers had made it impossible for me to remain in the department of health and retain my self-respect. My presentation of a resignation may have been desired, but was not requested.

Another Million for Medical Research.—Mr. and Mrs. Albert D. Lasker have given to the University of Chicago an endowment fund of $1,000,000 for medical research to be directed toward establishing the causes, nature and prevention and cure of the degenerative diseases. President Mason

in announcing the gift said that this concentration of research energy will constitute a unit attack on the diseases of men and women of middle age when their intelligence is at the highest and their value to the community is greatest. The institution which the gift establishes will be known as the Lasker Foundation for Medical Research. The Lasker endowment brings the sum of the donations in the history of the University of Chicago School of Medicine to more than $25,000,000.

Medical and Dental Arts Club to Open.—At the annual meeting of the Medical and Dental Arts Club and Corporation, January 3, it was decided to raise $25,000 with which to open the club as a going concern which, it is anticipated, will be done within two weeks. This is the first step in a campaign to secure a $350,000 trust fund to insure definitely the success of the Medical and Dental Arts Club and Corporation. Dr. Gilbert Fitz-Patrick, chairman of the advisory committee, announced that a period of fifteen months was allowed for putting into effect the reorganization of the club and corporation, and that he was confident the trust fund would be raised. U. S. Schwartz, attorney for S. W. Straus and Company, announced his company's foreclosure at the present time owing to first mortgage default of $60,000. Mr. Schwartz declared that this enterprise is fundamentally a sound business proposition. In his opinion, the first thing for the club to do is to "furnish the house and move in," and then to select a business manager and ask the support of dentists and physicians as leaseholders as rapidly as their present leases expire. Dr. Fitz-Patrick said that during the last ten days he had talked with eleven persons who had expressed a desire to take out membership in the club under the new plan.

Society News.—The annual midwinter meeting and clinic of the Chicago Dental Society will be held at the Drake Hotel, January 24-26.——Jacques Forestier, Paris, France, addressed the Chicago Rôentgen Society, January 12, on "Use of Iodized Oil in Medicine."——Dr. Carl A. Hedblom addressed the Chicago Society of Industrial Medicine and Surgery, January 9, on "Traumatic Surgery of the Thorax."——The Chicago Laryngological and Otological Society was addressed, January 9, by Dr. Joseph C. Beck on "Management of Malignant Diseases in Otolaryngology."——At the January 11 meeting of the Chicago Medical Society, Dr. Robert W. Keeton gave an address on "Dietetic Control of Obesity," and Dr. Henry Schmitz, "Early Diagnosis and Prognosis of Carcinoma of the Uterus." The January 25 program of the society will be a symposium on the psychoneuroses, Dr. Hugh T. Patrick discussing "Hysteria," with lantern slides, and Dr. Meyer Solomon, "Anxiety Neurosis."——Captain Hartley, commander of the steamship *Leviathan*, will be the guest of the Chicago Medical Post number 216 of the American Legion at a luncheon, January 17.——Among others, Dr. Loyal E. Davis will address the Chicago Pediatric Society, January 17, on "Intracranial Tumors of Childhood," and Dr. Lewis J. Pollock, "Neurologic Diagnosis in Children."——Dr. Joseph B. De Lee will present a motion picture obstetric case report—hydrocephalus in labor—before the Chicago Gynecological Society at the Murphy Memorial Building, 50 East Erie Street, January 20; Dr. Henry Schmitz will read a paper on "Diagnosis and Treatment of Sterility Due to the Closure of the Uterine Tubes," and Dr. Frederick H. Falls will speak on "Intra-Uterine Diagnosis of Monstrosities."

LOUISIANA

Society News.—Dr. Major G. Seelig, professor of clinical surgery, Washington University Medical School, St. Louis, gave the second annual Stanford E. Chaille Memorial Oration before the Orleans Parish Medical Society, Dec. 6, 1927, on "The Rise of Medicine." Dr. James Birney Guthrie, New Orleans, was elected president of the society for 1928.

Health at New Orleans.—Telegraphic reports to the U. S. Department of Commerce from sixty-eight cities with a total population of about 30 million, for the week ending Dec. 31, 1927, indicate that the highest mortality rate (26.5) was for New Orleans and that the mortality rate for the group of cities as a whole was 13.8. The mortality rate for New Orleans for the corresponding week last year was 17.9, and for the group of cities, 14.2.

"Longer Life Week."—The Orleans Parish Medical Society, New Orleans, conducted its first periodic health examination week, Dec. 5-10, 1927, which was officially proclaimed by the mayor of the city as "Longer Life Week." A large electric sign broadcast the message "A City's Health Is a City's Wealth"; placards were displayed in windows; banners were hung at hospitals, and moving pictures and slides were shown in all the movie houses. The business clubs of the city were addressed by physicians, as were most of the higher public and parochial schools, the universities and the colleges.

MARYLAND

Superintendent Resigns.—Dr. J. Percy Wade, superintendent of the Spring Grove State Hospital, Catonsville, tendered his resignation, effective January 1, and the board of managers has appointed Dr. Robert E. Garrett to fill the vacancy. Dr. Garrett has been connected with the hospital for twenty-eight years as first assistant physician.

Society News.—At the recent annual meeting of the Baltimore Medical Society, Dr. Joseph A. Chatard was elected president for 1928.——Dr. William J. Mayo, Rochester, Minn., will address the Johns Hopkins Medical Society, Baltimore, January 16, on "Splenomegaly," and Dr. Alexis Carrel, Rockefeller Institute for Medical Research, New York, will exhibit a new film dealing with research.

Personal.—Dr. Frederic V. Beitler severed his connection with the state department of health, January 1, after seventeen years of service as chief of the bureau of vital statistics. This will become a full-time position as soon as a successor can be appointed. Dr. Beitler declined the position because the salary was insufficient to justify his retiring from active practice.——Dr. John Randolph Winslow, Baltimore, has been appointed historian to the Medical and Chirurgical Faculty of Maryland; he will collect data on former members of the faculty and on events of medical interest in the state.

MASSACHUSETTS

Personal.—The following appointments at the Medical School of Harvard University have been approved by the corporation for one year: Francis W. Palfrey, instructor in medicine; Granville A. Bennett, instructor in pathology; Robert W. Buck, Wyman Richardson and James H. Townsend, assistants in medicine, and Eliot Hubbard, Jr., assistant in pediatrics.——Dr. Arthur J. Hewitt has resigned as a member of the board of health of Newburyport, and has been appointed one of the two school physicians, the other one being Dr. John W. Shaw.

Society News.—Dr. Arthur L. Chute, Boston, addressed the Worcester District Medical Society, Worcester, Dec. 14, 1927, on "Stone in the Kidney."——The Essex South District Medical Society met at Beverly Hospital, Dec. 7, 1927, for a clinical program on pernicious anemia, traumatic backs, mastoiditis following fractured skull, sinus infection and the Orr method of dressings.——The Boston Tuberculosis Association gave a musicale at the Hotel Statler, Dec. 16, 1927, to enable it to care for forty more children than were accommodated last year in the Prendergast Preventorium; the artists were Aidan Redmond, baritone, and Frank Ramseyer, pianist.

Public Sunday Lectures at Harvard.—Beginning January 8 and ending March 25, a course of free public lectures on medical subjects will be given at Harvard University, 240 Longwood Avenue, Sundays, 4 p. m., the doors closing at 4:05; no tickets are required. From January 15 on, the program will be as follows:

Dr. Cecil K. Drinker: Gas Poisoning, Electric Shock and Drowning, January 15.
Alfred C. Redfield, Ph.D.: The Laws of the Heart, January 22.
Dr. George R. Minot: The Importance of Diet in the Treatment of Anemia, January 29.
Mr. Johnson O'Connor: Aptitude Measurements in Vocational Guidance, February 5.
Dr. Hallowell Davis: The Child Meets the Family, February 12.
Dr. William L. Aycock: Infantile Paralysis, February 19.
Fred A. Beckford, D.M.D.: Restoration of Function in the Mouth and Teeth as a Health Measure, February 26.
Dr. Gilbert Horrax: Brain Disorders from the Surgical Standpoint, March 5.
Dr. Daniel F. Jones: Cancer, March 11.
Mr. Henry M Loomis: Public Health Aspects of Canned Foods, March 18.
Dr. Richard P. Strong: Health Conditions in Equatorial Africa Contrasted with Those in Countries Where Sanitation Prevails, March 25.

MICHIGAN

Dr. Draper to Give Beaumont Lectures.—The seventh series of Beaumont lectures which are under the auspices of the Wayne County Medical Society, Detroit, will be given by Dr. George Draper, assistant professor of clinical medicine, Columbia University College of Physicians and Surgeons, New York, January 23-24, on (1) "Human Constitution; What It Means and How to Study It"; (2) "The Patient and His Physician," and (3) "The Sex Factor in Total Personality."

Society News.—Dr. Clifton F. McClintic, professor of anatomy, histology and embryology, Detroit College of Medicine and Surgery, addressed the Wayne County Medical Society, January 10, on "Neurosurgery in Modern Practice—Diagnosis, Prognosis, Treatment."—Fifteen cases of scarlet fever were reported present in the city of Jackson, Dec. 20, 1927.—Prof. Harry N. Holmes, Ph.D., of Oberlin College, Oberlin, Ohio, addressed the Wayne County Medical Society, January 3, on "Colloidal Chemistry in Relation to Medicine." Dr. Clark D. Brooks addressed the society December 20, on "Surgical Treatment of Hyperthyroidism."

Another Practical Lecture Series.—Because the medical society program at the regular weekly meetings is in some instances too technical for ready utilization by the practitioner, the Wayne County Medical Society has established a series of practical lectures, chiefly for the benefit of general practitioners among their members. They will be given on Fridays at 5:30 p. m. until June. The lectures for January are:

Fundamental Signs in the Examination of Patients, Dr. Willard D. Mayer, January 6.
Everyday Laboratory Methods for the General Practitioner, Dr. Harry L. Clark, January 13.
Interpretation of Practical Laboratory Findings, Dr. Robert W. G. Owen, January 20.
Evaluation of Roentgen-Ray Findings, Dr. James H. Dempster, January 27.

MINNESOTA

Society News.—Dr. William A. Jones, Minneapolis, has completed his twenty-seventh year as editor of the *Journal-Lancet*.—Dr. Charles B. Wright, Minneapolis, addressed the Minnesota Academy of Medicine, January 11, at the Town and Country Club on "Achylia and the Effects of Histamine," and Dr. Charles E. Connor, St. Paul, on "Otitic Thrombophlebitis."—Dr. Herbert B. Aitkens addressed the Nicollet-Le Sueur County Medical Society, Le Sueur, Dec. 13, 1927, on the physiologic and medicolegal aspects of alcohol.

Minneapolis Declines Offer of General Education Board.—The offer by the General Education Board of the Rockefeller Foundation of $1,250,000 to aid the University of Minnesota in establishing a medical center on condition that the city of Minneapolis build a general hospital adjacent to the university was definitely rejected, January 5, according to the Minneapolis *Star*, at a joint meeting of the public welfare committee of the city council and the committee of twenty-three representing the board of regents, the public welfare board, and the Hennepin County Medical Society. The joint committees passed a resolution expressing deep appreciation of the offer of the Rockefeller Foundation, and stating that the city would continue to cooperate with the university in public health work. The resolution was acted on to clear the way for independent action on the part of the board of regents in negotiating for a gift from the foundation. A special meeting of the city council was to be called by the mayor the following day when the resolution agreed on at the joint meeting was to have been urged for passage. The discussion which the offer from the General Education Board brought about is said to have been beneficial in creating a better understanding between the city and the university.

MISSOURI

Personal.—Dr. Ralph W. Holbrook, Kansas City, has been made president-elect of the Jackson County Medical Society.—Dr. James F. Bulkley has resigned as president of the board of education of La Plata after thirty-six years of service.—The Lutheran Hospital, St. Louis, has named its roentgen-ray laboratory in honor of Dr. Edward H. Kessler, in recognition of his many years of service. Dr. Kessler recently decided to retire, continuing only as a consultant and supervisor of the laboratory at the hospital until another man has been found for the position.—Dr. Carlie Bell Souter Smith, Springfield, sailed for India, January 7, to pursue studies in cataract work at the Civic Hospital, Moga, about 200 miles from Delhi.

Society News.—The St. Louis Medical Society held a symposium, Dec. 20, 1927, on the care of the feebleminded, insane and the tuberculous in the city institutions; the speakers were Drs. James Wilbur Shankland, James Lewald, Elbert J. Lee, Jr., and Robert Schwartz.—At a meeting of the council of the Missouri State Medical Association, Dec. 7, 1927, Kansas City, the protest of the Jackson and Clay county medical societies against the broadcasting of Samuel E. Ball over Station WHB was considered; assurance was given that the contract for using this station to advertise the "Ball Health Institute" would not be renewed. The council instructed the committee on public health to continue its effort to stop this kind of broadcasting. The president of the state university extended a cordial invitation to the council to make such use of the university buildings as might be needed for the next annual meeting of the association, and offered any other assistance he could give.—The Missouri State Medical Association will hold its annual meeting at Columbia, May 14-17.

NEW JERSEY

Laboratory Boat for Examination of Oysters.—In order to carry out the provisions of the law with regard to the protection of the public against the pollution of shellfish the state department of health has built a floating laboratory large enough to accommodate a navigator and one or two technicians on extended trips. The boat is equipped so that bacteriologic and chemical examinations of water and samples of shellfish may be performed. Its name is *The Inspector*. All persons shipping shellfish into or out of the state of New Jersey must obtain a certificate from their local supervising authority, which in turn must be sanctioned by the U. S. Public Health Service. It is necessary to obtain the approval of the public health service that the states be in a position to determine the "safety" of shellfish waters. The inspection work in New Jersey is under the supervision of the bureau of chemistry which has examined thousands of samples of waters and shellfish, and condemned those areas from which it would be dangerous to remove oysters and clams for food. Such areas are placarded with large signs and any person who gathers shellfish from them may, on conviction, be fined $100 for the first offense and imprisoned for thirty days on subsequent offenses. The oyster and clam business in New Jersey is increasing each year and now ranks in value with its pottery industry, more than 3,500 men being employed in the Maurice River section alone.

NEW YORK

Cattaraugus County Laboratory to Be Moved.—According to the Salamanca *Enquirer*, the Cattaraugus County Laboratory will be moved from Olean as soon as arrangements for quarters can be made in Salamanca or in Little Valley. The city council of Olean apparently "ousted the health demonstration forces" from the city hall. The council was of the opinion that the "presence of the Cattaraugus County Health Demonstration is not essential to the health and well being of the residents of the city of Olean."

Hospital News.—An appropriation of $7,000 has been made by the board of estimate of New York to purchase 1 Gm. of radium for Bellevue Hospital.—The General Hospital of Syracuse is constructing an addition to the maternity department which will increase the bed capacity of the hospital to 110.—The private hospital of the late Dr. William F. Campbell, known as Trinity Hospital, has been purchased by the Trinity directorate and will be reopened as a general hospital; it is a modern structure of seventy-five beds valued at $500,000.—The board of estimate endorsed the recommendations of a special committee which investigated the Kings County Hospital and immediately appropriated $350,000 toward the completion of rebuilding plans, which ultimately will involve an expenditure of $6,325,000 for the modernization of the hospital covering a period of several years. Among the changes will be a new main hospital building.

New York City

Former Inspectors of Health Department Indicted.—A grand jury returned indictments, Dec. 29, 1927, against three former inspectors of the city health department on a charge of extortion which grew out of the investigation of the milk graft scandal.

Third Harvey Lecture.—Dr. Carl F. Cori of the State Institute for the Study of Malignant Disease at Buffalo will give the third Harvey Society Lecture at the New York Academy of Medicine, Friday evening, January 27, on "Influ-

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ence of Hormones on the Fate of Carbohydrates in the Animal Body."

Personal.—Dr. Joseph W. Walsh has been appointed medical expert in the corporation counsel's office, and will assume the duties of an examining physician in the second judicial district, which includes Kings, Queens and Richmond.——Dr. Joseph Eastman Sheehan was decorated with the Order of Alphonso XII by the personal physician of the king of Spain, January 3, in recognition of his work in plastic surgery.——Dr. Joseph J. Berkowitz has been appointed adjunct assistant obstetrician at St. Mark's Hospital.

Society News.—Dr. Morris Fishbein, editor of THE JOURNAL, will address a public meeting under the auspices of the Essex County Medical Society, Newark, N. J., January 24, 8 p. m.; the Medical Society of the County of Kings, Brooklyn, January 25, 5 p. m., and at 8:15 will address a public meeting on "Fads and Quackery" under the joint auspices of the medical society and the New York Tuberculosis and Health Association. On January 26, he will speak at the New York Academy of Medicine at 4 p. m., and at a public meeting in Bedford Center Forum, Brooklyn, 8 p. m. The Medical Society of the County of Kings held a symposium on the heart, Dec. 20, 1927, at which the speakers were Drs. Samuel W. Lambert, Robert H. Halsey and Simon Frucht.

A Ridiculous Figure.—The city health commissioner announces that the total number of cases of syphilis and gonorrhea reported in 1926 was 22,428, an increase of about 1,300 over the cases reported in 1925. Among the 17,700 cases of syphilis reported, only 1,958 were reported by physicians and only 4,351 by institutions, the remainder being reported by the laboratory of the department of health. It appears that some physicians do not comply with the regulations of the sanitary code as to reporting cases of venereal disease; the health department again requests them to do so. Some clinics and private laboratories do not report all of their cases. During 1926, sixteen private laboratories reported only 126 cases of syphilis, "a ridiculous figure on the face of it," the health department adds.

NORTH DAKOTA

"College Officials" Indicted.—The District of Columbia federal grand jury returned an indictment, Dec. 16, 1927, charging conspiracy to defraud by use of the mails against officials of the Central Chiropractic College, 1416 Third Avenue North, Fargo, which institution was incorporated in the District of Columbia. The acts in furtherance of the alleged conspiracy consist of delivering in Washington by mail five letters addressed to Miss Helen Hurley from some of the accused persons with reference to a supposed course of instruction in the college. The indictment charges that the defendants conspired to use the mails to defraud Miss Hurley and others unknown by mailing letters in which a Mr. Ben Martin is named as dean of the college. Those indicted are Ben Martin, Dearing, N. D.; Otis J. Briggs, Indianapolis; Rev. Charles H. Gunsclus, Indianapolis; Irene Conley, Minneapolis; W. H. Ames, Harrisburg, Pa.; O. L. Betty, address unknown; A. A. Galbreath, formerly state senator of Ohio and conductor of the Carnegie School at Rogers, Ohio, and Jerome L. Gibe, Bridgeton, N. J.

OHIO

Class Gives Insurance to Alma Mater.—The sixty-four members of the senior class of the University of Cincinnati College of Medicine have each taken out a twenty year endowment life insurance policy in favor of their alma mater, a class gift to the school. The matured policies will be turned over to the college at a class meeting in 1953. The plan is under the supervision of a committee comprising the dean, two members of the faculty and two representatives of the senior class.

Personal.—Dr. Carl L. McDonald has been elected president of the Academy of Medicine of Cleveland for the ensuing year.——Dr. James F. Wilson has been elected health commissioner of Fayette County.——Dr. Frank G. Kreft has been appointed coroner of Toledo to succeed the late Dr. Charles J. Henzler.——Dr. Emery R. Hayhurst, professor of hygiene, Ohio State University College of Medicine, Columbus, has been made chairman of the national committee of the United States for the Fifth International Medical Congress for Industrial Accidents and Occupational Diseases to be held in Budapest in September, 1928.——Dr. Carl A. Wilzback has been appointed executive secretary of the Cincinnati Social Hygiene Society.

Society News.—Dr. Cyrus C. Sturgis, director of the Thomas Henry Simpson Memorial Institute for Medical Research, Ann Arbor, Mich., addressed the Toledo Academy of Medicine, Dec. 16, 1927, on "Pernicious Anemia."——Dr. Harry S. Davidson, Akron, addressed the Lorain County Medical Society, Dec. 13, 1927, on "Value of Medical Organization."——Dr. Andre Crotti, Columbus, addressed the Athens County Medical Society, Dec. 5, 1927, on "The Present Status of Cancer."——Dr. Wells Teachnor, Sr., Columbus, formerly president of the Ohio State Medical Association, addressed the Ross County Academy of Medicine, Chillicothe, Dec. 8, 1927, on "Rectal Diseases."——Dr. Clarence J. Broeman, Cincinnati, addressed the Butler County Medical Society, Hamilton, Dec. 28, 1927, on "Some Practical Points in Dermatology."

Public Sunday Medical Lectures at Cincinnati.—A series of popular medical lectures to be given Sunday afternoon at 3 o'clock from January 8 to February 26 at the University of Cincinnati Medical College Auditorium, near the general hospital, has been announced. This is the second annual series. The average attendance at last year's lectures was about 200. The object of the course is to aid the public in recognizing physical disturbances and to urge the importance of early consultation with family physicians. The lectures announced are:

The Importance of Early Symptoms in the Detection and Prevention of Disease, Dr. Alfred Friedlander, January 8.
The Function of the Laboratory in Medicine, Dr. Stanley E. Dorst, January 15.
Diabetes, the Disease and Its Treatment, Dr. Lee Foshay, January 22.
Cancer: Its Nature, Detection and Treatment, Dr. William DeWitt Andrus, January 29.
Diseases of Interest to Men, Dr. Henry B. Freiberg, February 5.
The History, Significance and Aims of Preventive Medicine, Dr. William E. Brown, February 12.
Poliomyelitis or Infantile Paralysis, Dr. Edward A. Wagner, February 19.
Tuberculosis: Its Early Recognition and General Nature of Its Treatment, Dr. Henry Kennon Dunham, February 26.

"Dr. Crane" Fined.—A man representing himself as Dr. James Crane was convicted in municipal court of Cincinnati, November 29, of practicing medicine without a license; he was fined $25 and costs and his office was closed. Investigators for the state medical board found at his office, 822 Union Trust Building, blank prescription books bearing his name. Crane is said to have admitted to a detective that his home was at 1611 Linden Avenue, Baltimore, and at the hotel to have given his address as 1611 Linden Avenue, Indianapolis. The state medical board is not yet sure of Crane's identity. The state board of pharmacy filed a complaint at Dayton against this man under the name of James S. Crane, charging violation of the pharmacy law. He was found guilty and fined $200 and costs, and at the time of this report was still in prison. When Crane was arrested on this charge, he was operating in a pharmacy under the name of George A. Theobald and had in his possession the certificate of Theobald, who is dead. The board has an affidavit charging Crane with violation of the pharmacy law in Toledo and also at Rossford. When these affidavits were filed, Crane was going under the name of J. Seymour Cain. It was considered that the same person is involved in all of these complaints.

OKLAHOMA

Hospital News.—St. Anthony's Hospital, Oklahoma City, a five story structure costing $150,000 and with a capacity of sixty patients, has been formally opened to the public.——Dr. Edwin J. Rose, formerly head of the U. S. Veterans' Hospital, Kansas City, Mo., has assumed the superintendency of the Veterans' Hospital at Muskogee.

Society News.—Drs. Charlie P. Bondurant and Elias Margo, both of Oklahoma City, addressed the Stephens County Medical Society, recently, on common diseases of the skin and infantile paralysis, respectively.——Dr. Frederick G. Dorwart, Muskogee, addressed the Muskogee County Medical Society, Dec. 12, 1927, on "Essential Hypertension."

Much Typhoid and Diphtheria.—During the first eleven months of 1927, 2,110 cases of typhoid were reported to the state department of health in Oklahoma and 1,819 cases of diphtheria; among these, there were 424 deaths from typhoid and 223 from diphtheria. The state health officer in a bulletin draws attention to the fact that both these diseases are preventable, and asks why such a large number of cases occur in Oklahoma. The department, during the last year, has carried on a campaign of education advocating immunization, and has sent out more typhoid vaccine and toxin-antitoxin then ever before. For this reason the health

officer expects to see a material decrease in these diseases during 1928.

PENNSYLVANIA

Annual Tuberculosis Meeting.—The Pennsylvania Tuberculosis Society will hold its annual meeting at Harrisburg, January 24-25, at the Penn-Harris Hotel. Physicians, public health workers, social workers, nurses and others interested are invited. The meetings will be in charge of such men as Drs. Charles H. Miner, president of the society; James M. Anders, former president; Arthur C. Morgan, president of the Medical Society of the State of Pennsylvania, and Theodore B. Appel, director of the state health department. The program will emphasize tuberculosis in childhood; among the speakers will be Drs. Linsly R. Williams, managing director of the National Tuberculosis Association; Charles J. Hatfield, director of the Henry Phipps Institute; William G. Turnbull of the state department of health; Eugene L. Opie of the Henry Phipps Institute; Jay A. Myers of the University of Minnesota Medical School, Minneapolis, and David R. Lyman, Wallingford, Conn.

State Health Department Items—Lowest Smallpox Record.—Only twenty cases of smallpox were reported to the Pennsylvania State Department of Health during the year 1927, making a new low annual figure in smallpox. Only thirty cases were reported during 1926. These figures, the department states, indicate the protection afforded by vaccination. Infantile paralysis, which had been far above the average for several months, has dropped to normal, only ten cases being reported in December; 470 cases were reported in 1927, with eighty-six deaths. The bureau of field inspection has entered suits against a number of physicians who neglected to report contagious and communicable diseases. A small outbreak of typhoid exists at Crystal Lake near Scranton as a result of a broken sewer pipe which permitted seepage into a spring. The voters of Bellwood at the recent election authorized a bond issue of $100,000 for the construction of a sewage system, including sewage treatment works. The village of Orangeville with a population of only 500 recently put into operation a public water supply. The three state sanatoriums for tuberculosis were run at full capacity during 1927; there was a continuous waiting list reaching as high as 1,100 during the summer. The sanatoriums are at Mount Alto, Cresson and Hamburg, and since they opened in 1906, 1913 and 1914, respectively, 58,782 patients have been treated. The bureau of state clinics will hold special diagnostic clinics at Chambersburg, January 26, and Gettysburg, January 31, under the supervision of Dr. Royal H. McCutcheon, medical director of the Mount Alto Sanatorium.

Philadelphia

Society News.—Among others, Dr. James E. Landis, Reading, addressed the Philadelphia Laryngological Society, January 3, on "Herpes of the Soft Palate."——Dr. Temple S. Fay addressed the Philadelphia Roentgen Ray Society, January 5, on "Encephalography."——Dr. Pascal Brooke Bland has been elected president of the Philadelphia Obstetrical Society for 1928.

Personal.—Dr. Ross H. Skillern, professor of laryngology, Graduate School of Medicine of the University of Pennsylvania, presented the honor medal of the American Academy of Ophthalmology and Oto-Laryngology to Gen. Herbert S. Birkett at Montreal last week. Dr. Birkett's election to honorary membership in the academy is the first one ever extended by the society.——Dr. Arthur C. Morgan, president of the Medical Society of the State of Pennsylvania, has been appointed a member of the board of publication of the *Pennsylvania Gazette*, a magazine of the Alumni Association of the University of Pennsylvania.——Dr. Wilmer Krusen, former director of public health, was guest of honor at a reception, January 3, given by the Philadelphia College of Pharmacy, of which Dr. Krusen was recently elected president.

Woman's Medical College Seeks Funds.—A campaign was opened, January 4, at the Bellevue-Stratford Hotel to raise $1,500,000 for the new building of the Woman's Medical College of Pennsylvania to be erected at the Falls of the Schuylkill. More than 500 workers will collect during January the initial sum required to start work on the buildings. The school plans ultimately to establish a medical center for women students, teachers, research workers and practitioners. The present college and hospital at Twenty-First Street and North College Avenue was founded in 1850 by two physicians, members of the Society of Friends. The college has sent out more than 1,600 graduates. An effort is being made in this campaign to establish a $75,000 memorial to Dr. Hannah E. Longshore in the form of a department of therapeutics to commemorate her work as the first woman to open a physician's office in Pennsylvania. A number of other prominent physicians will be similarly honored. Among those on the campaign committe are Drs. Lawrence Webster Fox, John S. Rodman, Henry D. Jump and Catherine MacFarlane. The national chairman of the fund is Dr. Ellen C. Potter.

RHODE ISLAND

Society News.—Dr. Edward S. Brackett has been elected president of the Providence Medical Association for 1928; at a meeting, Dec. 5, 1927, Dr. John W. Keefe addressed the society on "Aids to Greater Safety in Operation."——At the quarterly meeting of the Rhode Island Medical Society, Providence, Dec. 1, 1927, a gift of about 1,100 books written by medical men on topics other than strictly medical was announced. Dr. Norman M. MacLeod, president of the society, addressed this meeting on "The Physician and Public Health"; Dr. Byron U. Richards, state commissioner of public health, on "Prevention of Diphtheria by the State," and Dr. Edward V. Murphy, Newport, on "Quarantine of Scarlet Fever Governed by Throat Cultures."

SOUTH DAKOTA

Personal.—Dr. Hampton R. Kenaston, Bonesteel, has been reappointed a member of the state board of health for a term of five years, and Dr. Harry J. Bartron, Watertown, has been appointed a member of the board to succeed Dr. Robert D. Alway, Aberdeen, resigned.——Dr. John C. Greenfield has been elected president of the chamber of commerce of Avon.——Col. James A. Barker, governor of Battle Mountain Sanatorium, Hot Springs, S. D., has been relieved of that position at his own request and assigned to the branch of the National Soldiers' Home near Augusta, Maine. He has been succeeded at Hot Springs by Dr. Edward R. Lindner, an assistant surgeon at the sanatorium.

Society News.—The Third District Medical Society met at Brookings in December; among others, the president of the state association, Dr. Silas M. Hohf, Yankton, gave an address on "Medical Economics," and Dr. Hiram L. Youtz, Brookings, on "Some Phases of Goiter." Dr. John F. D. Cook, Langford, secretary of the state association, reported on pending national legislation. Dr. Youtz was elected president of the society for the ensuing year.——Dr. John B. Gregg, Sioux Falls, was elected president of the Seventh District Medical Society for 1928 at the recent annual meeting, which was addressed by Dr. Silas M. Hohf and by Attorney T. M. Bailey of Sioux Falls on "The Business Side of the Practice of Medicine and Surgery."——At the annual meeting of the Yankton District Medical Society, Dec. 21, 1927, Dr. Charles W. Pollard, Omaha, spoke on "Management of Treatment of Obstetric Complications"; Dr. Lottie G. Bigler, Yankton, was elected president for the ensuing year.

WASHINGTON

Society News.—Dr. Henry Takacs addressed the King County Medical Society, Seattle, January 9, on "Shall the Practice of Medicine Remain a Profession or Become a Business," and Dr. E. Weldon Young on "Function and Importance of the Medical Library."

Osler Memorial Lectures in Prospect.—California, Oregon and Washington are promulgating a course of lectures, one to be held annually and to be given by prominent physicians. Members of the King County Medical Society, Seattle, have appointed representatives to arrange for its number, which it is hoped will be attended by physicians from all the state; it will probably be given by Dr. William S. Thayer, Johns Hopkins University School of Medicine, Baltimore, President-Elect of the American Medical Association.

Another Orchestra of Physicians.—The King County Medical Society, Seattle, has organized an orchestra which made its first appearance at the annual dinner last March. The orchestra has been practicing regularly in the Medical-Dental Building under the guidance of Dr. Raymond L. Jeffery and Dr. Carl M. Burdick. A picture of the organization appears in the county society bulletin. More instruments are wanted, particularly French horns, bassoons, trombones, cello, violins and bass viol. The members are much interested; it gives them an opportunity not only to furnish entertainment for others, but to develop a hobby of their own. The only other orchestra of physicians which has been noted in THE JOURNAL recently is that of the Summit County Medical Society, Akron, Ohio.

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WEST VIRGINIA

Society News.—Drs. William S. Fulton and William K. Kalbfleisch, both of Wheeling, addressed the Marshall County Medical Society, Moundsville, Dec. 13, 1927, on gallbladder diseases and a lantern slide demonstration of cholecystectomy, respectively.——Dr. Herbert H. Haynes, Clarksburg, addressed the Harrison County Medical Society, Dec. 1, 1927, on "Gallbladder Diseases."

Personal.—Dr. James H. McCall, who for six years has been connected with the Michigan State Health Department, has been appointed health officer of Marshall County.—— Dr. Henry F. Spillers has resigned as superintendent of the Ohio Valley General Hospital, Wheeling.—— Dr. William Ross Cameron has been appointed full-time health officer for Berkeley County with headquarters at Martinsburg; this is a new health unit and is being financed on a cooperative basis by the city, county and state.——Dr. Joseph A. Striebich, Moundsville, was elected chief of staff of the Reynolds Memorial Hospital, recently.

GENERAL

Personal.—Dr. Bert W. Caldwell, until recently superintendent of the municipal hospital, Tampa, Fla., has been appointed executive secretary of the American Hospital Association, whose headquarters are in Chicago, to succeed Dr. William H. Walsh, resigned (THE JOURNAL, General News, Oct. 22, 1927, and Florida News, Dec. 17, 1927).

Participation in International Exhibition.—An allotment of $2,000 has been made by the U. S. Treasury Department of the public health service for the preparation of an exhibit to be used at the International Exhibition at Seville, Spain, that will be held in October, 1928. The U. S. Government is participating in this exposition, and all of the government departments and bureaus will be represented. The exhibit of the public health service that is being prepared includes the subjects of smallpox vaccination, venereal diseases, tularemia, safe water and other miscellaneous items.

Social Hygiene Work.—Studies of vice conditions in fifty-nine cities in thirty states were made by the American Social Hygiene Association during the last year at the request of official or voluntary agencies. The association's staff during the year gave 1,125 lectures attended by 250,000 persons. The association is attempting to provide practical and accurate literature for colleges, normal schools and other educational institutions, and is attempting to train teachers for educational work in schools. Institutes have been held for teachers, special summer courses have been given and permanent courses have been established through the efforts of the association in various negro institutions at Hampton, Tuskegee, Ala.; the state normal school, Montgomery, Ala., and Howard University, Washington, D. C.

Society News.—At the annual meeting of the board of incorporators and the central committee of the American Red Cross, Washington, D. C., Dec. 7, 1927, consideration was given to the investment of the endowment fund, which stands now at $5,323,000.——It was announced, January 8, that the American Red Cross had cabled $60,000 to the League of Nations at Geneva to assist in transporting about 3,000 white Russian refugees from Turkey to Corsica, Cyprus and Argentina.——Dr. Harry G. Irvine, Minneapolis, was elected grand primarius of the Alpha Kappa Kappa fraternity at the recent meeting in Galveston, Texas, succeeding Dr. William Engelbach, St. Louis. The fraternity granted a charter to the Caduceus Club of Georgetown University, Washington, D. C. The next convention will be held in Philadelphia, December, 1929.

Enforcement of Caustic Poison Act.—Instructions have been issued by the food, drug and insecticide administration of the U. S. Department of Agriculture to its sixteen branches throughout the country to make a survey of products manufactured which would be subject to the caustic poison act. The manufacturers of these products will be instructed to take such action as may be necessary to label their products properly in accordance with the law which became effective March 24, 1927. This law has been sponsored for a long time by the American Medical Association to prevent accidents from the careless or ignorant handling of caustic acids and alkalis, notably of lye. Government officials are of the opinion that few prosecutions will be necessary in enforcing this act, as it is expected that manufacturers of such products will label them in accordance with the law.

Illegal Narcotics Are Almost All Smuggled.—The annual report of the secretary of the treasury shows that the illegal traffic in narcotics is confined almost entirely to the smuggling of drugs into this country from foreign countries, and that very little of the narcotics lawfully brought in are diverted to illicit channels. The various associations representing the profession, trade, the courts and local authorities are cooperating with the treasury department in stopping this traffic. The vast commerce which passes through the seaports of our country makes possible the secret introduction of illicit narcotics under the guise of merchandise or hidden in the personal effects of crews. A joint resolution has been introduced into the House of Representatives by Congressman Kelly of Pennsylvania which would appoint a narcotic commission consisting of three members of the Senate and three members of the House of Representatives to investigate the narcotic situation in the United States. The proposed commission will have authority to summon witnesses, hold public hearings and report its conclusions for proposed legislation to Congress.

History of Society for Prevention of Blindness.—A small group of citizens organized the New York State Committee for the Prevention of Blindness about twenty years ago, chiefly to combat and prevent ophthalmia neonatorum. Their work became widely known, calls for help being received from all sections of the country. Consequently, in 1915, the National Committee for the Prevention of Blindness was organized. The work at that time was financed by the Russell Sage and Rockefeller foundations and a small group of individuals, but as it became better known financial support was received from many other individuals and organizations. Now the roster of the organization exceeds 25,000 persons. Since the committee was organized, the frequency of blindness from ophthalmia neonatorum has been reduced by 50 per cent, but other serious causes of blindness have developed in America, chief among which are the industrial occupations, and eye accidents, diseases and strain incidental to the daily work of millions of persons. Industrial accidents alone are said to cost the industries of the United States almost $10,000,000 a year and to be responsible for 15 per cent of the blind population. There is now identified with the work of preventing blindness in the United States one person for every four blind persons, and about $100,000 a year is expended to prevent blindness. This organization feels that its work has been so extended that a better name would be the National Society for the Prevention of Blindness, by which it will henceforth be known.

CANADA

Chiropractic Adjustments for Diphtheria—Child Dies.—A coroner's jury in Montreal, Dec. 28, 1927, held Chiropractor Charles P. McKay, 4941 Wellington Street, Verdun, responsible for the death of William F. Murphy, aged 4, who died of diphtheria, after being treated for several days by the chiropractor. Chiropractor McKay apparently had treated three other children in this family for "sore throat" by means of chiropractic adjustments. The mother testified, according to the Montreal *Gazette*, that "he stretched them out on two chairs covered with cushions and pressed on their backs." She also said that McKay did not tell her that he was a drugless practitioner until the day the child died. McKay testified that he explained that he was a drugless practitioner when he first went to the Murphy home. A doctor of medicine was called in to see the child a few hours before it died.

HAWAII

Pan-Pacific Surgical Congress in Honolulu.—The Pan-Pacific Union through the governor of the Territory of Hawaii will call a Pan-Pacific Surgical Congress to meet in Honolulu in August, 1929, at which time it is expected the Far Eastern Medical Association will hold its annual meeting in Honolulu. A committee has been appointed to arrange for the surgical conference of which Dr. Nils P. Larsen is the general chairman; Dr. Nathaniel M. Benyas, the corresponding secretary, and Dr. George W. Swift, Seattle, Wash., chairman for the Pacific Coast and British Columbia. This committee has prepared a basic plan for the congress, the object of which is to bring together surgeons from countries bordering on the Pacific Ocean. The subjects discussed will be limited to surgery, its specialties and hospital standardization. For the program, each country is to select a surgical subject pertinent to that country. There will be no routine clinics; dry clinics and case presentations are to be particularly encouraged. A special clinic on leprosy will be given afternoons at the Kalihi Leprosarium. The afternoons are to be occupied with papers, public lectures and a minimum of dinners. Suggestions, criticisms or additions to the plan are invited.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Dec. 17, 1927.

The Prevention of Infectious Diseases

At a meeting of the national baby week council, Prof. H. R. Kenwood, vice president of the council, said that baby week, which had now become a national institution, was an intense week of propaganda having the greatest possible results all over the country. It was a terrible thing that 3,000 children should have died last year from diphtheria when there was a safe and efficient remedy by antitoxin immunization. That this process, which would substantially reduce mortality, was needed was shown by the fact that the case rate, or the number per thousand of children who suffered from diphtheria, was the same as it was fifteen years ago.

In a discussion on the prevention of disease by immunization, with especial reference to children under 5, Dr. C. C. Okell of the Wellcome Physiological Research Laboratories said that diphtheria could be prevented on any scale that political considerations allowed; scarlet fever could be largely if not entirely prevented by analogous methods; measles could be prevented or transformed into a harmless disease by a method which, while applicable to individual cases, could not in its present form be applied on a large scale; and tuberculosis could not be prevented by immunization, but the possibilities in that direction were far from exhausted.

Dr. R. A. O'Brien said that any healthy adolescent or adult who contracted measles should consider it a duty to offer a reasonable amount of his blood serum during convalescence to a responsible medical authority for the use of specially urgent cases. Convalescent serum was not readily available in this country, and the need far exceeded the supply.

Dr. C. W. Hutt, health officer for Holborn, said that half the deaths from diphtheria in London took place in children under 5 years of age. It was hoped that gradually increasing proportions of the younger children would be presented at the maternity and child welfare centers for immunization. It was announced that the council's campaign for 1928 would include immunization, with especial reference to children under 5; prevention of maternal mortality, with especial reference to antenatal care and the provision of maternity homes and hospitals, and new developments in infant welfare work.

Is It Right to Let an Incurable Patient Die?

In a recent letter (THE JOURNAL, Nov. 26, 1927, p. 1884) the question whether in certain conditions physicians should be allowed to terminate life painlessly was discussed. A cognate question has now arisen in the press. Is it right for a physician to let a patient die who is in a hopeless condition? This question has been discussed following the statement made by Dr. A. T. Simpson of Sheffield at the inquest of a man, aged 71, whom he had been attending for chronic dropsy. Dr. Simpson said that when he called at the house he found Robinson suffering from laudanum poisoning, and that he was convinced that the best thing to do was to let the man die. Death occurred three hours later. "We could," Dr. Simpson said, "have done nothing to save the man, as it was impossible to get the laudanum out of his stomach, and, even then, I would have hesitated to try and bring him wilfully back to life, as, if he had lived, his life would have only been a misery." This view has given rise to much criticism. Many physicians hold that in hopeless cases in which patients are suffering intense pain from a malady which must prove fatal, it is not humane to prolong life by artificial means. Others hold the view that the age-long maxim of the medical profession that "while there is life there is hope" should never be abandoned under any circumstances. The view of the British Medical Association is that the physician's mission is to maintain life by every means within his power, but many physicians contend frankly that, while their primary duty is to save life, they are engaged on a mission of mercy and should not hesitate to prevent unnecessary suffering, even if by so doing the patient dies sooner than if other steps had been taken. Sir William Arbuthnot Lane, in a press interview, said: "Legally there is no question that the physician's duty is to do all in his power to maintain life under all circumstances. Morally, he has an obligation to minister to the needs of a patient and at the same time consider the anguish of the relatives of a person who is slowly dying under the tortures of some dreadful disease. My view is that the physician should do unto others as he would be done unto. It is the physician's duty in such cases to relieve suffering rather than to prolong it. Take the case of a man who is dying from some disease such as cancer. It is only a question of time, and the longer his death is in coming, the greater the amount of pain he will suffer. If in his agony he takes more than the normal amount of opium prescribed to deaden the pain, I do not think that any physician would interfere. I do not think a physician's refusal to submit the man to drastic reactions to overcome the poison would be either unfair or inhuman." Other physicians strongly express the opposite view.

Hospital Evolution

At the opening of the new Redhill Hospital, Edgware, Mr. Chamberlain, minister of health, said we were rapidly getting away from the old idea that the rich could be treated in their own homes; that the poor could be dealt with in the voluntary hospitals; that those who were neither rich nor poor had not time to be ill and did not want treatment at all; and that for the pauper, whether curable or incurable, there was reserved the workhouse infirmary. Today it was felt that there was no class or community that should be excluded from hospital treatment. The very fact that Hendon Guardians had called the new building a hospital, and not an infirmary, seemed to indicate that they had recognized the tendencies of the time and that they were getting away from the old distinctions. "I foresee the time," he said, "when every hospital, whether it be a voluntary hospital, a poor law hospital, or otherwise, will play its part in a general scheme of institutional treatment which should be sufficient to meet the needs of every one in the area." The result of modern discoveries had been to increase specialization in medicine and surgery, and it followed that to get the best of treatment it was no longer possible to treat the majority of patients in their own homes.

Another question, now much discussed, is the future of the voluntary hospitals. Persons of socialistic views—which unfortunately are very prevalent at present—favor the provision by the state of hospitals for all and the disappearance of the voluntary system. Opposing this, Dr. Graham Little (dermatologist and member of parliament for London University) points out in a letter to the *Times* that the running of a voluntary hospital is infinitely more economical than that of a state controlled hospital. There are two main reasons for this: (*a*) The blending of highly qualified volunteer lay workers with the medical staff makes an ideally efficient system of control; economy of administration without sacrifice of efficiency is encouraged by competition between the hospitals, whose "records" are published by King Edward's Hospital Fund. (*b*) The state hospital, if it hoped to attract the eminent physicians and surgeons who now freely give their services to a voluntary hospital, would be obliged to offer salaries large enough to compare with the rewards from private practice. It is doubtful whether even

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pecuniary inducements could secure the same quality of medical officers, but the cost would be impossible. The new participation in the upkeep of the voluntary hospitals by the section of the community that chiefly benefits from them, the working classes, has led to a widely diffused and increased interest, not to say pride, in the institutions thus helped, and a consequent increase of prestige sufficiently demonstrated by the simple statement that while there are, unfortunately, increasingly long waiting lists for admission at all the voluntary hospitals, the result of increased popularity, there are hundreds of permanently empty beds at the poor law hospitals. Unless the poor law hospitals are completely remodeled to become, at prohibitive cost, faithful copies of the voluntary hospitals, they cannot begin to discharge the duties of training students and initiating research, now performed by the teaching hospitals, which are the flower of the voluntary system. One feature among many in which the poor law hospital is lacking is the outpatients' department, which is the "growing point" of knowledge at every teaching hospital; nine tenths of the training of students is given there, as it is there that the beginnings of diseases are detected and treated.

The Health of the Public School Boy

Dr. L. R. Lempriere, health officer of Haileybury College, lectured at the Royal Institute of Public Health on the health of the public school boy. He said that the average school boy of 13½ years entering a public school was today taller and heavier than his predecessor of forty years ago. During the war, as was to be expected, no advance was made, but in the last three years there had been a definite increase in both height and weight. In spite of this increase in weight and height the average school boy of today was less robust, more of a sybarite, and more of a weakling than his predecessor. He accounted for this by the fact that the improvement in school conditions led to the entrance of boys who in earlier times would either not have lived to school age or at any rate would never have come to a public school. This lowered the general good health record. These weaklings formed from 10 to 15 per cent of the school population. School illnesses fell, roughly, into two groups. Dealing first with epidemics, he said that a code for guarding schools from outbreaks had been in action for more than forty years, and now, though the number of epidemics might be a little smaller, the number of cases had increased—a disappointing result. This was largely due to the precautions taken by parents and private schools to keep out infectious diseases, which was more easily done in small communities. Such postponement of disease to a later time of life benefited neither the boy nor the community. Quarantine after exposure to infection should be abolished, and a boy's time of return to school should be judged by his health, regardless of infectivity. The total number of epidemics might be increased, but he was sure there would be no increase in the number of cases, and in the case of measles, at any rate, severity would be lessened. The suggestion that boys should be asked not to attend parties for one week before returning to school was futile. Illnesses connected with the digestive system could also be reduced by education before the public school age, as the majority were undoubtedly due to bad habits. Operations for appendicitis were the most common at schools. Pneumonia was rarely dangerous to boys. The importance of heart disabilities had been much exaggerated. Many cases righted themselves at puberty and many improved with the general physical condition. The nervous type of disease was not on the increase, as was believed by some. For this type the nervous parent was largely to blame. The high strung boy was the result of the highly spoiled child. The question of eyesight received careful attention, but he would emphasize the necessity of examining boys' eyesight every two years, as great changes took place.

PARIS

(From Our Regular Correspondent)

Dec. 14, 1927.

A Prophylactic Leprosy Service in Morocco

M. Robineau, in a communication to the Société d'hygiène et de médecine tropicales, favored the creation in Morocco of a prophylactic leprosy service. It has been estimated that there are 302 lepers in Morocco, forty-three of whom are said to be in the region about Fez, the capital. The actual figures, however, are doubtless much higher. M. Colombani, in a previous communication, recommended several prophylactic measures. Robineau has studied the various proposals. He approves the idea of isolating on the isle of Mogador those who have reached the last stage. The fact remains that the distribution of leprosy in Morocco is still imperfectly known, and it should be borne in mind that the majority of the cases are what are known as "florid" cases, which are highly contagious. Treatment by the ethyl esters of chaulmoogra oil should be the basis of prophylaxis.

The Crusade Against the Social Insurance Bill

The general assembly, representative of the various rival medical syndicates combined, adopted unanimously a protest that will be sent to the chamber of deputies before it votes anew on the social insurance bill in the form in which it was recently passed by the senate. The protest covers essentially the following points: Members of the various syndicates agree to accept the decisions reached, in general assembly, by the majority. All collaboration in the execution of the law will be refused unless it takes account of the conditions that the medical profession demands. The various regional medical syndicates will be able to enter into relations with the *caisses d'assurance* of their respective areas, but only the syndicates approved by the general assembly shall be recognized by the *caisses*, and when they have been accepted their decisions must be complied with. In this way, it is hoped that the creation of dissident syndicates by the *caisses* themselves, with the result that they take their instructions from the *caisses* instead of from the general assembly, may be prevented. The demand is made that the law itself shall declare that only the syndicates recognized by the general assembly shall be recognized by the *caisses*. The insured patient may summon any physician, whether a member of a syndicate or not, provided such physician shall have accepted the articles of the model contract proposed by the general assembly and shall recognize the latter (or the special commission that it will create) as arbiter in case of a controversy. Professional secrecy, or the right of privileged communication, must be rigorously preserved in all the documents that physicians shall be required to furnish to the *caisses*. The physician must receive personal fees for every patient treated, whether in his private office or in a hospital, or in any collective institution established by the *caisses*. The physician shall be paid directly by the patient, on the basis of minimum syndical fee schedules, and not by the *caisse*. The latter shall reimburse the patient in such manner as it may determine, without the physician having anything whatever to do with it. The physician shall be absolutely free to prescribe the treatment that he may deem best, without any list of medicaments being imposed on him. Representatives of the accepted syndicates shall serve on all the technical commissions organized by the *caisses* for the drawing up of contracts and the organization of dispensaries, hospitals, or care-taking institutions. As may be seen, a union has been accomplished between the rival groups of the medical profession in view of the dangers that threaten the whole profession at the hands of the projected legal enactments. It is feared that the chamber of deputies, the new elections to which will take place in a few months, will refuse to follow these suggestions

and will pass without modifications the bill as it came from the senate. In that case there will be an open struggle throughout France between the physicians and the law, and it does not yet appear which will vanquish.

The General Assembly of the A. D. R. M.

The Association pour le développement des relations médicales entre la France et les pays alliés ou amis has just held its general assembly at the Academy of Medicine under the chairmanship of Professor Hartmann. Professor Roger, the dean of the faculty of medicine, announced that a bureau of information has recently been created for physicians and students of medicine who come to Paris as strangers—a bureau where they will be received and will be given all the information needed to guide them in the organization of their studies and their visits, and even in securing their lodgings. Since its creation, the bureau has been consulted by 613 foreigners, seventy-six of whom were from the United States. Requests by letter for information have been received from 710, and 310 foreign physicians have registered for postgraduate courses in hospitals. The association has also taken the initiative in establishing postgraduate courses in which the English language is the medium of communication, and which are given by young hospital physicians and agrégé professors of the faculty of medicine. These courses, which are carefully worked out, are being attended by ever increasing numbers.

A Monument to the Hospital Externs Who Have Lost Their Lives in the Line of Duty

The "hospital externs," which is the lowest rank in the hierarchy of the hospital medical personnel, have been organized in an association only a few years. The externs, as it is commonly their duty to dress wounds, are exposed to professional accidents and occasionally lose their lives because of their devotion to duty. The Association des externes has accordingly erected in Paris, in the court of the Hôpital de l'Hôtel-Dieu, a monument to the memory of externs who have thus sacrificed their lives, with a tablet commemorating their names.

GENEVA

(From Our Regular Correspondent)

Dec. 15, 1927.

Place of Albucasis in Surgery

In a recent lecture on the Arabian surgeon Albucasis (936-1013), Dr. Cumston said, among other things, that in his surgical writings there was little new excepting some advice in respect of amputations. Albucasis has enjoyed great esteem for many centuries because in the first place his writings have never been confronted with those of his predecessors. To judge Albucasis according to the intrinsic qualities of his book on surgery, one is often inclined to attribute to him procedures which he never invented. Surgery was not in favor among Arabian practitioners when Albucasis appeared on the scene. Hence his work assumed the proportions of a monument. Dr. Cumston would not judge Albucasis as a surgeon without merit. Unquestionably he lacked originality, yet his writings show that he was an eminent practitioner. His knowledge was extensive, he had vast practical experience, and he not infrequently illustrates his remarks by personal case histories. He restored important operations that had been forgotten, and his work is the first to be illustrated by drawings of surgical instruments. It was the work of Albucasis, brought into France about the middle of the thirteenth century by Italian physicians, that caused surgery to make some progress, and it remained a vade mecum in Europe until the renaissance, an epoch when Greek medicine could be derived from the original sources and hence took the place of Arabian medicine.

International Professional Association of Physicians

At the second annual meeting of the International Professional Association of Physicians, the Swiss delegate, Dr. Vuilleumier, said that although specialization was a bad thing it was necessary and inevitable. Specialization is bad from the standpoint of relations between colleagues, administrations and social insurance. There are three principal reasons why specialization is necessary: The domain of medicine is so extensive that no single practitioner could ever master it all; medical science exacts such varied qualities from the physician that they cannot be all combined in one man, and the requirements of the public would create specialists did they not already exist.

Now, what in medical practice is a specialist? Is each physician free to call himself a specialist or should it be regulated as in Germany, where the number of branches of medicine in which one may specialize is limited to fourteen? Here only exceptionally is a physician authorized to give himself out as a specialist for two or several "branches." Another important question is whether or not the right of assuming the title of specialist should depend on special studies and an examination. In other countries—Germany, among others—not only must the specialist have been several years an assistant in a hospital service devoted to the particular specialty, but there is a control exercised by special commissions (*Prüfungsausschüsse*) made up of physicians and specialists, nominated by medical organizations.

It would also be interesting to know whether the conditions governing the practice of a specialty are granted by political or by administrative authorities, or whether they result from an understanding among the medical profession. When there has been an understanding among the profession, do the rules adopted bind all physicians and how do they control them? Is there any penalty for those who will not submit or attempt to elude them? If so, what are they and who judges and applies them? Another point to be examined is whether a general practitioner may practice a specialty, or if a general practice excludes a specialty *ipso facto*.

The relations between practitioners and specialists and insurance give rise to problems and here comes in the question of fees. A specialist is supposed to receive larger fees than those of a general practitioner for the same intervention. This may be justified from the longer duration of study, costly plants, and also from the fact that the number of patients consulting a specialist is fewer than that of a general practitioner. Some physicians will not admit that employing an otoscope or a rhinoscope permits a specialist to receive larger fees than a practitioner who uses these instruments. The latter does not receive a larger fee when he uses a stethoscope, so why should an otorhinologist get more for using his otoscope? Going still further, it can be maintained that a general practitioner who removed a foreign body from the ear or eye should receive a larger fee than a specialist because, since he is less familiar with the technic, the operation is more difficult for him, hence exposing him to a greater degree of professional responsibility.

The question of fees does not play any great part in ordinary daily practice, but this cannot be said of social insurance in general. Many companies, for the sake of economy, admit with difficulty a difference of fees for the same intervention, and physicians also are not ready to admit this difference.

Le Comte Prize

In secret committee, the French Academy of Science has awarded the Le Comte donation of 50,000 francs (triannual) to Dr. Alexander Yersin, director of the Pasteur Institute, Annam. Yersin was born at Morges, in the canton of Vaud (not many miles from Geneva), Sept. 22, 1860. He developed the antiplague serum.

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RIO DE JANEIRO

(From Our Regular Correspondent)

Nov. 15, 1927.

The Tubercle Bacillus

Dr. A. C. Fontes submitted to the Medical and Surgical Society some cultures of the tubercle bacillus. These specimens, after being kept for thirty-one months in the ordinary environment, lost completely their growing power. The addition of broth and a stay in the incubator brought back the power to develop subcultures and the old virulence.

Fontes also described the staining method designed by Dr. Barbosa de Cunha. The material is emulsified on the slide with a drop of xylene. After this evaporates, and after heat fixation, the preparation is treated with Ziehl-Nielsen's solution.

Plasmodium Vivax and Plasmodium Falciparum

Dr. Aben-Athar has noticed at Para an alternation of *Plasmodium vivax* and *Plasmodium falciparum*. The proportion of malarial fevers is constant there and the two parasites prevail evenly in the year as a whole. However, their monthly distribution varies a great deal, and as one increases in frequency the other decreases. Quininization, while decreasing the number of cases of malaria, did not influence the monthly oscillation of the two varieties.

Syphilis and Diabetes

Dr. O. Clark has seen in the last three years six persons with diabetes in whom the only possible causative factor was syphilis. There was no venereal history and the clinical examination proved negative. However, the Wassermann test was strongly positive. Two patients with diabetes seen by Clark before the advent of insulin also recovered following antisyphilitic treatment.

A Brazilian Gift Against Leprosy

Mr. G. Guinle, the Brazilian who has presented Rio with most well equipped syphilis and cancer institutes, has given $10,000 to the health section of the League of Nations in order to finance the present studies of remedies for the treatment of leprosy.

Hospital Commission

A commission has been sent to the United States by the government to study hospital organization and equipment. Its personnel includes Drs. J. Marinho, the new president of the National Hospital Board, and Thompson Motta.

Acriflavine in Foot-and-Mouth Disease

Dr. Parreiras Horta has reported to the National Academy of Medicine the success attending the trial of acriflavine in foot-and-mouth disease in cattle. The use of a 2 cc. ampule is enough. An outbreak was promptly controlled in this way and the new method has already 264 cures to its credit.

A Brazilian Medical "Caravan"

Under the auspices of the Rio Medical and Surgical Society, and headed by its president, Prof. N. Gurgel, several hundred Brazilian physicians will start in the early part of December for Buenos Aires and Montevideo.

Methylene Blue in Leprosy

Prof. M. Couto, the president of the National Academy of Medicine, has submitted a preliminary note on the use of methylene blue in leprosy. Out of twelve patients in whom the drug was tried, two improved. The injection caused a slight reaction but no harmful effect in any case.

New University

The president of the Minas Geraes has signed the law creating a state university. This will include at first four colleges, namely, law, engineering, medicine and odontology and pharmacy. The medical school will have an annual endowment of 600,000 milreis (about $72,000).

Health of School Children

According to the last report of the chief school inspector of São Paulo, 4,295 school children were weighed during the year 1926. All those found underweight were sent for further examination to the health dispensaries. Out of 2,254 examined, 1,894, i. e., 84.02 per cent, were worm carriers. The parasites most prevalent were: ascaris, 53.51 per cent; trichuris, 43.25 per cent; hookworm, 22.08 per cent; hymenolepis, 13.88 per cent; whipworm, 5.42 per cent.

Medical Week

Brazil has decided to take the initiative in introducing in the Western continent the medical meetings now enjoying so much popularity in Latin countries in Europe. A committee with Dr. Miguel Couto as president, Drs. Juliano Moreira and Nascimento Gurgel as vice presidents and R. Belmiro Valverde as general secretary has been appointed to make all the arrangements. The date of July 1-5, 1928, has been chosen, as this is the most agreeable season at Rio for visitors. A number of social features will round up the scientific program. Ship and railroad companies are offering special rates for the occasion.

BUDAPEST.

(From Our Regular Correspondent)

Dec. 7, 1927.

Experiments on the Blood Index

In the great racial controversies which are waged in the Near East countries of Europe the attempt has been made to solve racial problems by application of the blood index. Earnest research men, however, have expressed their doubts as to the feasibility of this method for practical purposes, at least for the time being. Discussing this matter in a lecture, Prof. László Detre of Budapest university said that the problem of blood kinship is a hard one. Some persons want to determine the superiority of single people on the ground of the blood index of various nations. In Vienna, where the blood kinship theory has too many adherents, some extremists appealed to the city council to make the blood test compulsory for every school child. These experiments would have had the purpose of demonstrating from the human blood the ethnic and particularly the Semitic origin of the children. Of course, the city council refused to comply with the request of the applicants, because its medical advisers argued that the blood index theory is still in its cradle and only the future will show whether it ever will be of any practical value. The problem also has engaged the German medical world. Professor Detre says that evidence is lacking on the basis of which the origin of single persons could be determined with certainty, let alone the superiority of races. That the blood index has no connection whatever with the degree of culture of the respective races is borne out by the fact that, for instance, the blood index of the Indians is 10, while that of the Italians is only 3. The blood index of the Papuans, who live in Australia, in want of any culture, is 9; that is, three times as great as the 2.8 of the Germans. The index of the French is 3.2; English, 3; Americans, 2.9; Austrians, 2.6; Bulgarians, 2.6; Roumanians, 2.2; Hungarians, 2; Japanese, 1.7; Senegals, 0.8; Hindus, 0.8; Gipsies, 0.6; German Jews, 3.4; Polish Jews, 1.7; Macedonian Jews, 1.6, and Balkan Jews, 2.1. The blood index of Jews varies as to the country in which they live.

The demonstration of the blood class to which a certain individual belongs is not difficult and is constant throughout life. Much more difficult is the establishing of the blood index of a new-born child. Professor Detre himself performed 1,325 experiments in lawsuits relating to paternity,

and out of this number of cases he succeeded in verifying in only twelve cases that one of the child's parents belonged to another blood group. The blood test is valuable also from a forensic point of view, through the testing of blood stains. If the blood pertains to the class to which one of the suspected culprits belongs, the police get possession of a valuable particular in the identification of the criminal.

ITALY

(From Our Regular Correspondent)

Nov. 30, 1927.

Congress of Internal Medicine

The Società italiana di medicina interna held recently in Parma its thirty-third congress. In the opening address the president, Prof. Edoardo Maragliano, discussed specific immunity in infectious diseases and its practical applications (still rare) in the prophylaxis and treatment of forms of disease.

DISEASES OF GROWTH

The first main topic on the program, "Diseases of Growth," was presented by Prof. Nicola Pende, director of the Clinica Medica in Genoa. The diseases of growth may be divided into primary or idiopathic and symptomatic or secondary to some other disease process. Speaking of the diseases of growth at present best known, the author described cardiopathy in adolescents, to which, after the markedly analogous "irritable heart" of the war period, he proposed assigning the term "irritable heart of adolescents," and which, according to his personal observations, is often combined with signs of adenoidism, spasmophilia, and lordotic albuminuria. Pende holds that the pathogenesis of such conditions must often be sought in vagotonic constitutional hyperthyroidism. He referred to the problem of whether or not there is such a thing as *febbri di crescenza,* or fevers associated with the phenomena of growth, which, even today is not settled. He has induced the minister of public instruction to establish in Genoa a special institute for researches on (together with courses of instruction) the growth of children and adolescents during the primary and the secondary school period. The author is also experimenting in collaboration with Professor Durante, surgeon, with pluriglandular grafts.

THE HEMORRHAGIC DIATHESIS

The second main topic was opened with a paper by Prof. Di Guglielmo, of the University of Modena. He explained the fundamental differences between hemophilia and purpura haemorrhagica. Hemophilia is connected with a disturbance of the biochemical blood factor; purpura haemorrhagica depends chiefly on vascular fragility and a disturbance of the autoregulatory mechanism of the capillaries.

In the discussion that followed the presentation of the paper, several took part; among others, Volterra of Florence, who, on the basis of his researches, emphasized that a fundamental distinction must be made between vascular fragility and endothelial fragility; Castellino of Naples, who called attention to the recent researches of Spadolini and Ferri on the metabolism of calcium in hemorrhagic predispositions, and Preti of Sassari.

HABITUAL CONSTIPATION

The third main topic, "Habitual Constipation," was divided into three parts and was discussed in common with the Società di chirurgia. The first paper — on the medical side—was presented by Prof. Francesco Schiassi of Bologna. The speaker referred to the difficulty of an exact clinical diagnosis. This induced Schiassi and Sighinolfi to make a study of the anatomic and physiologic characters of the large intestine in relation to the various constitutional types, which has demonstrated antithetic characters in the two fundamental consitutional types, namely: the megalosplanchnic and the microsplanchnic.

The second paper—on the surgical side—was presented by Professor Spangaro of Venice. He discussed chiefly the ligamentous apparatus that supports the intestine and the form and disposition of the large intestine. He brought out that the motor activity of the intestine depends not only on the nervous system but also on the properties of the muscular fibers. He explained methods of surgical intervention that may be used.

The third paper—on the aspects of radiology—was presented by Prof. Armando Rossi of Parma. The radiologic examination has made it possible to classify various forms of constipation as hypokinetic, spastic and dyskinetic, and, from the topographic point of view, as cecal and transverse. At present, however, there is a tendency to combine all these types, and to consider also the constitutional characters.

SECTION ON MILITARY AND COLONIAL MEDICINE

For the first time, a section on military and colonial medicine was combined with the congress. Professor Germino (with the relative rank of lieutenant colonel) presented a paper on antityphoid vaccination in the army. The author concluded that, at the present stage of investigation, the lipovaccines prepared with vegetable oil or cod liver oil, or with mixed oils, appear to be the best tolerated, giving rise to moderate reactions and never causing abscesses. Another paper was presented by Prof. Angelo Di Nola, a member of the army medical corps with the relative rank of lieutenant colonel, on the subject of "Medical-Military Aviation." The speaker referred to the recent experiences in Libia, and to the studies of Lieutenant Colonel Falchi on the use of the Caproni apparatus and the airplane capable of transporting from four to six wounded in litters and two seated. The speaker discussed also the question of neutralization of medical department apparatus, which hitherto, in spite of numerous proposals, has not yet been brought about.

Rome was chosen as the meeting place for the next congress, in 1928.

BERLIN

(From Our Regular Correspondent)

Dec. 10, 1927.

The Reduction in Organic Neuroses

Professor von Bergmann, director of the second Medizinische Klinik, delivered recently before the Verein für innere Medizin in Berlin an address entitled "The Reduction in Organic Neuroses as the Result of Improved Internal Diagnosis." The speaker quoted a statement of Professor Goldstein of Frankfort-on-the-Main that "the manifestations of functional and organic disorders are absolutely alike." In the presence of disturbed function it has been the custom to seek for some disturbance in the organ, but often nothing was found and thus the notion of a neurosis was adopted. Thereupon, a number of diseases came to be classed as neuroses, which, since then, on the basis of new causal observations, have come to be counted among the organic disorders. (Exophthalmic goiter belongs to this class.) Other disorders are still subject to varying interpretation. The speaker believes that the diagnosis "neurosis" has been reached too frequently in the immediate past, and that often organic observations are overlooked. He thinks, however, that they are not being overlooked so often as they were formerly, and that, as a result of the improved internal diagnosis, the list of neuroses is getting smaller.

The Increased Occurrence of Thrombosis and Embolism

For some time past, a striking increase in sudden deaths from embolism has been noted. In 1913, the Eppendorf Hospital in Hamburg recorded only nineteen cases of thrombosis among 15,000 admissions, but, in 1923, the number had

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increased to thirty-one, in 1924 to forty-six, in 1925 to eighty-five, and in 1926 to 153 cases. Also the necropsies give evidence of a considerable increase in this direction. In 1913, of 1,370 necropsies, thrombosis and thrombophlebitis were established in sixty-five instances; in 1925, of 1,483 necropsies, in 137 cases, and, in 1926, of 1,281 necropsies, in 102 instances. The cause for the increase is not at all clear. External influences (roentgen rays, anesthesia, intravenous injections, blood transfusions) are not the cause, in the opinion of Hegeler. Other authors, however, ascribe a large part of the blame to the increased vogue of administering medicaments intravenously. Hegeler suggests rather an inferiority of the vascular endothelium and a change in the composition of the blood—possibly an increase in the globulin content. He calls attention also to the peculiar fact that in many cases of thrombosis the velocity of the sedimentation of red corpuscles is found to be reduced. In this connection, he recalls that in typhoid a like reduction, together with a marked tendency to thrombosis development, is observed. Hegeler states also that cases of hereditary predisposition to thrombosis have been observed.

The Welfare Arrangements on the Federal Railways

The Deutsche Reichsbahngesellschaft has published a report on the social insurance system and the welfare arrangements in vogue during 1927. Welfare work among employees while on duty has been well developed. In the smaller stations recreation rooms and lodgings have been provided, and at the larger, remote stations bachelors' quarters have been erected. At all large railway centers, bathing facilities are furnished. Workmen are afforded opportunities to prepare their meals, and refreshments—coffee and other nonalcoholic beverages—are supplied on every hand. The station concessionaires are under contract to furnish the personnel beverages and nutritious food at reasonable prices. Attention is given to the avoidance of accidents, and the first-aid service is well developed. First-aid kits are kept in the baggage cars, in the coaches of the express trains, at the stations, and at other centers. Physicians and ambulances are also readily available. At the close of 1926, there were 64,764 railway employees who had been trained in the "Samaritan service."

For the fiscal year 1927, $476,000 was expended in the crusade against tuberculosis. In 1926, 8,224 officials, employees and workmen (and their families) received tuberculosis benefits from the funds of the federal railways, while 1,594 adults and 3,852 children were given protracted treatment in health centers and climatic resorts. The railway physicians are required to give talks. The self-help efforts of the personnel are aided by the federal railway administration through special grants, reliefs from service, free transportation, and the like. Further self-help arrangements exist in the form of the death benefits fund, the daughters of railway employees fund, the sons of railway employees fund, welfare centers, vacation colonies, children's homes, and convalescents' homes of the various associations of railway employees.

Marriages

FRANCIS E. STEWART, Philadelphia, to Mrs. Susan Palmer Linnell of Englewood, N. J., at New York, Dec. 26, 1927.

DEAN DEWITT LEWIS, Baltimore, to Miss Norene Kinney of East Chicago, Ind., at Girard, Ohio, Dec. 26, 1927.

RICHARD SPENCER GILL, West Palm Beach, Fla., to Miss Willy Ruth Bowden of Columbus, Ga., Dec. 12, 1927.

MYRON MICHAEL RADOM, Hartford, Conn., to Miss Edythe Pollak of New York, Nov. 24, 1927.

EARLE STANDLEE, Washington, D. C., to Miss Mary Walker of Cleburne, Texas, Dec. 28, 1927.

Deaths

James Denver Glennan ✠ Brigadier General, U. S. Army, retired, Washington, D. C.; Howard University School of Medicine, Washington, 1885; Medical Department of Columbian University, Washington, 1886; was commissioned in the army as assistant surgeon in 1888 and rose through the various grades to brigadier general, being retired in 1926; served during the Spanish-American War; held positions of great responsibility in France during the World War; was formerly in command of the Letterman General Hospital, San Francisco, and of the Walter Reed General Hospital, Washington, where he died, Dec. 24, 1927, aged 65, of pernicious anemia.

Edgar Randolph Strobel, Baltimore; Johns Hopkins University School of Medicine, Baltimore, 1899; member of the Medical and Chirurgical Faculty of Maryland, and the American Dermatological Association; associate in clinical dermatology at his alma mater; formerly clinical professor of dermatology, Baltimore Medical College and associate professor of dermatology, University of Maryland School of Medicine; consulting dermatologist to the City Hospital; aged 54; died, Dec. 27, 1927, of cerebral hemorrhage.

Ester Mathilda Eleonora Sundelof-Ericson, New York; Tufts College Medical School, Boston, 1916; member of the Massachusetts Medical Society, and the Radiological Society of North America; formerly on the staffs of the New England Hospital, Boston, the Lynn Hospital, Lynn, Mass., the Fall River (Mass.) Hospital, the New York Infirmary for Women and Children and the Roosevelt Hospital, New York; aged 32; died, Dec. 21, 1927, at the New York Nursery and Child's Hospital, of acute appendicitis.

Albert Robin ✠ Wilmington, Del.; University of Pittsburgh School of Medicine, 1897; member of the American College of Physicians; at one time professor of pathology, bacteriology and hygiene, Temple University School of Medicine, Philadelphia; formerly on the staffs of the Physicians and Surgeons' Hospital and the Delaware Hospital; associate editor of the *Atlantic Medical Monthly;* aged 55; died, Dec. 22, 1927, of heart disease.

Francis Merton Munson ✠ P. A. S., Lieutenant, U. S. Navy, retired, La Plata, Md.; Medico-Chirurgical College of Philadelphia, 1899; secretary of the Charles County Medical Society; formerly health officer of Paducah, Ky.; deputy state health officer; aged 49; died, Dec. 10, 1927, of injuries received when the automobile in which he was driving overturned.

Samuel Thompson Hardison ✠ Lewisburg, Tenn.; University of Nashville Medical Department, 1877; past president of the Tennessee State Medical Association and the Marshall County Medical Society; Civil War veteran; for fifty years chairman of the county board of education; aged 86; died, Dec. 31, 1927, of senility and influenza.

William Harvey Thornton ✠ Buffalo; University of Buffalo School of Medicine, 1883; member of the House of Delegates of the American Medical Association, 1908, 1910 and 1911; past president of the Medical Society of the State of New York; aged 70; died, Dec. 29, 1927, of angina pectoris.

James Pemberton Lofland, Milford, Del.; Medico-Chirurgical College of Philadelphia, 1897; formerly member of the board of health of Milford; served during the World War; aged 59; died, Nov. 14, 1927, at the Milford Emergency Hospital, as the result of a cerebral hemorrhage.

David Chillingworth Dodds ✠ Albuquerque, N. M.; University of Illinois College of Medicine, Chicago, 1903; past president of the Bernalillo County Medical Society; associated with the U. S. Veterans' Bureau; aged 58; died, Dec. 18, 1927, of cerebral hemorrhage.

Benjamin L. Maienthal ✠ Decatur, Ill.; University of Louisville (Ky.) School of Medicine, 1891; formerly on the staff of the Decatur and Macon County Hospital; aged 57; died, Dec. 19, 1927, at Memphis, Tenn., of diabetes mellitus, angina pectoris and bronchopneumonia.

William H. McEwen, St. Charles, Mich.; University of Western Ontario Medical School, London, Ont., Canada, 1892; bank president; served during the World War; aged 59; died, Nov. 8, 1927, at St. Mary's Hospital, Saginaw, of chronic interstitial nephritis and uremia.

Clifford Evan Van Slyke ✠ Mount Greenwood, Ill.; Loyola University School of Medicine, Chicago, 1916; on the staff of the Roseland Community Hospital, Chicago, and the St. Francis Hospital, Blue Island, where he died, Dec. 16, 1927, of pneumonia.

Louis Philippe De Grandpré, Montreal, Que., Canada; University of Montreal Faculty of Medicine, Montreal, 1885; for many years clerk of records at the legislative assembly of Quebec; aged 65; died in December, 1927.

Daniel Francis Ray ✠ Stockton, Calif.; Vanderbilt University School of Medicine, Nashville, Tenn., 1888; formerly on the staff of St. Joseph's Home and Hospital; aged 70; died, Oct. 20, 1927, of chronic myocarditis.

Stanley John Brown ✠ Mount Morris, N. Y.; University of Buffalo School of Medicine, 1910; aged 41; died, Dec. 2, 1927, at the Clifton Springs (N. Y.) Sanitarium, of acute nephritis and cerebral hemorrhage.

Presley Worthington Morehead, Clarendon, Va., College of Physicians and Surgeons, Baltimore, 1884; member of the Medical Society of Virginia; aged 67; died, Nov. 29, 1927, at Staunton, of toxic myocarditis.

Warren Edward Putnam, Bennington, Vt.; Homeopathic Hospital College, Cleveland, 1881; formerly president of the Bennington Board of Health; aged 70; died, Dec. 17, 1927, of myocarditis and nephritis.

John Burwell Newton, Hartford, Conn.; New York Homeopathic Medical College and Hospital, 1894; aged 57; died, Nov. 18, 1927, at St. Francis Hospital, of hemorrhage due to an abdominal aneurysm.

William Francis Walter ✠ Washington, D. C.; Georgetown University School of Medicine, Washington, 1892; aged 56; died, Dec. 21, 1927, at the Providence Hospital, of gangrene and diabetes mellitus.

Thomas Parsons, Rochester, N. Y.; New York Homeopathic Medical College and Hospital, 1895; aged 57; died, Dec. 1, 1927, of arteriosclerosis, cerebral hemorrhage and chronic nephritis.

Charles H. Zurmuhlen, Dayton, Ohio; Pulte Medical College, Cincinnati, 1897; formerly lecturer on pharmacology at his alma mater; aged 69; died, Dec. 9, 1927, of heart disease and nephritis.

William Edward Welch, Rainier, Ore.; Rush Medical College, Chicago, 1886; formerly mayor of Rainier; aged 66; died, Dec. 3, 1927, at the home of his sister in Portland, of myocarditis.

Joseph Amasa Munk, Los Angeles; Eclectic Medical Institute, Cincinnati, 1869; Civil War veteran; aged 80; died, Dec. 4, 1927, of angina pectoris and chronic interstitial nephritis.

George F. La Paul, Excelsior, Minn.; Minnesota Hospital College, Minneapolis, 1885; formerly a druggist; aged 66; died, Nov. 17, 1927, of carcinoma of the throat and tongue.

Robert S. Payne ✠ Dallas, Texas; Gate City Medical College, Texarkana, 1907; aged 53; died, Dec. 12, 1927, at a local hospital, of injuries received in an automobile accident.

Williams Hill Ryan, Moltke, Tenn.; University of Nashville Medical Department, 1900; aged 61; died, Dec. 8, 1927, at Fort Henry, of carcinoma of the bladder.

John M. Fly, Leesville, Texas; Medical Department University of Louisiana, New Orleans, 1874; aged 78; died suddenly, Nov. 12, 1927, of heart disease.

John Clarence Dixon ✠ Connellsville, Pa.; University of Pittsburgh School of Medicine, 1908; aged 43; died suddenly, Nov. 27, 1927, of heart disease.

James M. Dollar, Cameron, Texas; University of Nashville Medical Department, 1868; Confederate veteran; aged 87; died, Nov. 4, 1927, of senility.

John Franklin Lemmon, Mount Airy, Ga.; Medical College of Ohio, Cincinnati, 1891; aged 73; died, Oct. 18, 1927, of carcinoma of the esophagus.

Thomas Edward Sears, Baltimore; University of Maryland School of Medicine, Baltimore, 1874; aged 53; died in December, 1927, of heart disease.

William E. Pryor, Camden, Ohio; Homeopathic Hospital College, Cleveland, 1892; aged 66; died suddenly, Dec. 9, 1927, of heart disease.

Francis William Brown, Indianapolis; Medical College of Ohio, Cincinnati, 1894; aged 67; died, Sept. 28, 1927, of myocarditis.

CORRECTION

Dr. Bucher Is Not Dead.—Dr. W. H. Bucher, superintendent of the Olive View Sanatorium, Olive View, Calif., writes that the report of his death in THE JOURNAL, Dec. 31, 1927, was a mistake. The basis of our report was a notice in *California and Western Medicine.*

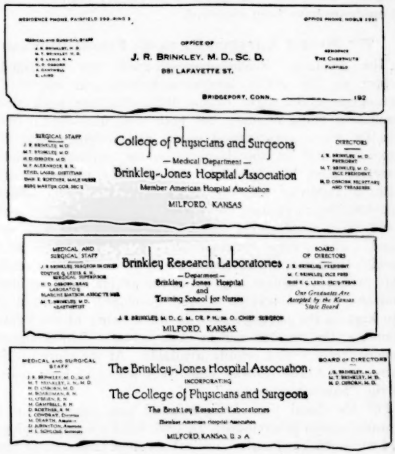
Bureau of Investigation

JOHN R. BRINKLEY—QUACK

The Commercial Possibilities of Goat-Gland Grafting

In and from the little village of Milford, Kansas, John Richard Brinkley demonstrates the commercial possibilities of "goat-glands." Brinkley is no modest violet. He obtains his publicity through sensational articles in newspapers that cater to such stuff, and by means of the privately owned radio broadcasting station KFKB.

In order that one may properly appraise the professional background of John R. Brinkley, the following information, taken from the files of the American Medical Association, is given: Brinkley claims to have been born in Beta, North Carolina, in 1885. In filing an application for license in California, he declared under oath that he obtained his preliminary education at Milton Academy, Baltimore, where he claims to have been in attendance from September, 1902, to July, 1906, at which time, he declares, he was granted a


OFFICE OF
J. R. BRINKLEY, M. D., Sc. D.
891 LAFAYETTE ST.
BRIDGEPORT, CONN.

College of Physicians and Surgeons
— Medical Department —
Brinkley-Jones Hospital Association
Member American Hospital Association
MILFORD, KANSAS

Brinkley Research Laboratories
— Department —
Brinkley - Jones Hospital
and
Training School for Nurses
MILFORD, KANSAS

The Brinkley-Jones Hospital Association
INCORPORATING
The College of Physicians and Surgeons
The Brinkley Research Laboratories
Member American Hospital Association
MILFORD, KANSAS, U. S. A.

Some of the various letterheads used at different times by Brinkley. It will be noticed that, while the "Medical and Surgical Staff" lists and "Board of Directors" show what purport to be three physicians connected with the Brinkley institution, only one of them, Brinkley himself, is legally licensed to practice in Kansas. The other two "M.D.'s" claim diplomas from the Kansas City College of Medicine and Surgery diploma mill. The statement that the Brinkley institution is a "Member American Hospital Association" is no longer true.

diploma by this institution. In making his application, Brinkley did not file any diploma, but presented a photograph of a letter written on the letterhead of Milton Academy, signed by William J. Heaps. Incidentally, William J. Heaps is one of the persons on whom Brinkley claims to have done a goat-gland grafting. Neither the Milton Academy nor Milton University seems to belong to any group of accredited educational institutions.

In the advertising matter that Brinkley sends out, he makes no reference to his attendance at Milton Academy, Baltimore, from 1902 to 1906. On the other hand, the Brinkley advertising circulars declare that in 1902 he was a traveling relief agent for the Southern Railway Company, and that in 1903 he went to New York, where he was employed successively by the Western Union Telegraph Company, the Central Railway Company of New Jersey as traveling auditor, and by the Delaware, Lackawanna and Western as a yard agent. Just how he carried on all these multifarious activities in New York while, at the same time, he was attending Milton Academy in Baltimore, we leave to Brinkley to explain—and no doubt he has an explanation.

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BRINKLEY'S MEDICAL TRAINING

In 1908, Brinkley matriculated at Bennett Medical College, Chicago, at that time an eclectic institution, and he appears to have been in attendance for three years, from 1908 to 1911, inclusive. Brinkley did not complete his medical education, however, at Bennett, but four years after leaving Bennett—in 1915—he got a diploma from the Eclectic Medical University of Kansas City, Missouri. For good measure, four years later still—in 1919—he obtained another diploma from the diploma mill, the Kansas City College of Medicine and Surgery.

Just what Brinkley was doing between the time he left Bennett in 1911 until 1915 is not clear. A newspaper clipping from the Kansas City *Post* of December, 1915, records that Brinkley had just been granted a divorce from his first wife, Sallie M. Brinkley. The newspaper article states that in June, 1911, Brinkley came home to find a note from his wife reading:

"Here is $1.10 for car fare until next pay day. I have left you and you will never see me again."

A newspaper clipping from the Greenville (South Carolina) *News* of December 9, 1913, records the trouble of one J. R. Brinkley, "eclectro-medic doctor," who had been brought back from Knoxville, Tennessee, to Greenville, South Carolina, charged with forgery. Whether the J. R. Brinkley in this item is John Richard Brinkley, now of Milford, is a question. There was no J. R. Brinkley who at that time was legally licensed to practice medicine.

Brinkley's own claims as to his whereabouts in the interim between 1911 and 1915 vary. In statements made under oath, Brinkley has declared that from September, 1911, to June, 1913, he was attending the National University of Arts and Sciences at St. Louis, Missouri. The list of matriculants and special students of this institution from 1910 to 1914, inclusive, fails to reveal any one by the name of J. R. Brinkley. The documentary evidence offered by Brinkley of his alleged attendance at the National University of Arts and Sciences was a document (see illustration) issued by W. P. Sachs, State Superintendent of Public Instruction of the State of Missouri and Dean of the College of Liberal Arts of the National University of Arts and Sciences. Sachs, it will be remembered, is the person who played one of the star parts in the diploma mill scandal, and who was placed under arrest on the charge of having issued some thousand or more fraudulent preliminary education certificates. Sachs later admitted, under oath, that he had never met Brinkley and that the Brinkley certificate dated June, 1913, was issued in 1918 for a cash consideration and without an examination.

Brinkley claims to have entered the Eclectic Medical University of Kansas City in September, 1914, and to have been granted senior standing, based on his three years' attendance at Bennett. He claims, further, to have been graduated from this institution on May 7, 1915. This institution was not recognized by the licensing boards of forty states in the Union. It has since gone out of existence.

At this point, some other facts are worth interpolating. As has already been stated, Brinkley has admitted (in a sworn statement made in applying for license) that he did not graduate until 1915. In the advertising booklet that Brinkley has sent to those who write to Station KFKB, it is claimed that he graduated in medicine in 1911, then practiced for six months in North Carolina, and then returned to Chicago and New York to take postgraduate work. The same booklet claims that, in 1914, Brinkley accepted a position as plant surgeon with Swift and Company, Kansas City, "where he was afforded an unparalleled opportunity for studying diseases of animals," especially of the glandular parts of the animals. The facts are, Brinkley was employed by Swift's as a "physician and clerk" for just one month—from January 13, 1916 (not 1914, as claimed) to February 19, 1916.

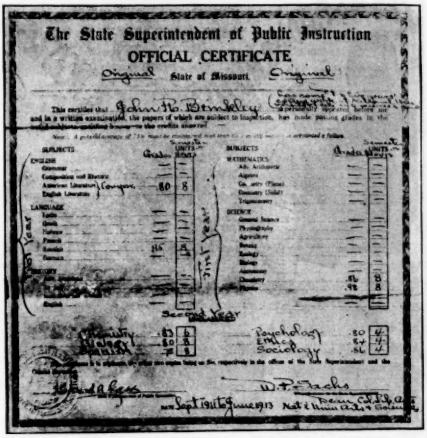
One thing seems certain: Brinkley obtained a diploma from the Eclectic Medical University of Kansas City for 1915 and lost no time in applying for a license from the Eclectic Board of Arkansas. To appreciate the significance of both the diploma from this school and the license from the Eclectic Board of Arkansas, one has only to remember the diploma mill scandal of a year or two back. Brinkley also obtained a license to practice in Tennessee in 1915 and in Kansas in 1916.

In 1917, according to the KFKB booklet, Brinkley volunteered as a medical officer in the regular army. To quote:

"Due to the scarcity of army doctors during those hectic days of 1917, it became necessary for him to do the work ordinarily required of ten men, being on duty twenty-four hours out of the day. As a result, he suffered a nervous breakdown and in August, 1917, was retired by the Surgeon-General of the Army to the inactive list."

The official army record, however, throws a somewhat different light on the matter. A chronological statement of Brinkley's active service, as shown by the records of the War Department, follows:

"June 2-3, en route from his home to Fort Sam Houston.
"June 4-6, at Fort Sam Houston awaiting orders.
"June 7-8, en route to El Paso.
"June 9-July 10, on duty as surgeon and assistant to surgeon, 64th Infantry, Fort Bliss, Texas.
"July 11-August 14, under observation in Base Hospital No. 2, Fort Bliss, Texas."


The State Superintendent of Public Instruction
OFFICIAL CERTIFICATE
Original State of Missouri Original

Photographic reproduction of one piece of documentary evidence offered by Brinkley, when attempting to obtain a license in California. It is supposed to show Brinkley's alleged attendance at the National University of Arts and Sciences. This "Official Certificate" issued by W. P. Sachs was, as Sachs admitted under oath later, one of many that were issued for cash considerations and without an examination. Sachs swore that he had never seen Brinkley.

Evidently, then, Brinkley's actual army service was exactly one month—from June 9, 1917, to July 10, 1917. Brinkley was transferred for observation and treatment to Base Hospital No. 2 *upon his own statement* that he was physically unfit for duty. On August 14, he was ordered to proceed to his home, where he was relieved from further active duty in the Reserve Corps. His commission as a Reserve Officer terminated in August, 1922, but KFKB booklets, sent out a year or more subsequent to that date, contain the statement:

"He still retains his commission as a Reserve Officer of the Army Medical Corps."

Brinkley claims to have received a diploma in 1919 from the Kansas City College of Medicine and Surgery. This is the diploma mill whose charter was later revoked.

ARRESTED FOR SELLING BOOZE

In 1920, Brinkley was arrested on the charge of selling "spirituous, malt, vinous and other intoxicating liquors" and of maintaining a public nuisance, in violation of the liquor laws of the state of Kansas. He pleaded guilty and was sentenced to pay a fine of $300 and to be confined in jail for

ninety days, and also to pay the costs of the case. This was on March 15, 1920. Five days later, Judge R. L. King of the Eighth Judicial District granted Brinkley a parole, so that he escaped the fine and the jail sentence and merely had to pay the costs!

In the summer of 1920, Brinkley came to Chicago, where he is alleged to have performed several of his "rejuvenation" operations. As a result of the publicity attending this work, the Illinois authorities began looking into Brinkley's right to practice medicine in that state, and found, of course, that Brinkley had no Illinois license. The Department of Registration and Education of the State of Illinois was preparing to take action against him when Brinkley left the state.

In 1921, Brinkley got a Connecticut license, issued by the Connecticut Eclectic Board, which, it will be remembered, issued so many licenses to individuals who had purchased or otherwise obtained diplomas from the Kansas City "diploma mill." Two years later, Brinkley's Connecticut license was revoked.

PREACHES FUNDAMENTALISM—PRACTICES GOAT-GLAND SCIENCE

How a Famous Surgeon Combines Old-Time Religion and New-Fangled Operations on a Strange Medico-Gospel Farm

Photographic reproduction, greatly reduced, of a three-quarter page newspaper article that appeared in the autumn of 1926, puffing Brinkley and describing him as a "famous surgeon."

BRINKLEY INDICTED IN CALIFORNIA

In 1922, Brinkley applied for a license to practice medicine in California, on the basis of reciprocity. The California board made an exhaustive examination of Brinkley's antecedents and educational qualifications, and denied the application. San Francisco papers of March 23, 1922, reported that Harry E. Andrews, the managing editor of the Los Angeles *Times*, was under the care of John R. Brinkley, who, it was alleged, performed the "goat-gland operation" on him. Since then Brinkley has played up this case in his advertising.

In 1924, Brinkley was indicted in California on the charge of conspiring to violate the medical laws of that state. The California authorities requested the extradition of Brinkley, but Governor Davis of Kansas refused to honor the requisition.

In 1925 and 1926, Brinkley was still advertising heavily. As part of the newspaper publicity, the public was told that Brinkley had been awarded a degree by the Royal University of Pavia, Italy. Just how Brinkley "put over" this coup is not altogether plain, but unlimited effrontery may travel far. According to the report published in newspapers, the degree awarded by the Royal University of Pavia "followed a nineteen-day examination of the most strenuous sort." Brinkley, the report added, was the "first foreigner of any kind to receive a degree from the university" for "an Austrian doctor, who had been there for a year trying for a degree, failed to pass." The Italian institution, it seems, did actually issue a diploma to Brinkley, based on his scholastic attainments at the egregious Eclectic Medical University of Kansas City. When the University of Pavia found out the facts in the case, it annulled the diploma. Brinkley, however, continued to publish the statement in his advertising material, that he was a "Graduate Royal University of Pavia."

BRINKLEY AS A FUNDAMENTALIST

In the autumn of 1926, a lurid unsigned article, with a goat's head embellishing the center, appeared in a sensational Sunday newspaper. (See miniature reproduction.) It occupied more than two thirds of a page, and puffed Brinkley as "the most unusual scientist-fundamentalist." The title was "Preaches Fundamentalism—Practices Goat-Gland Science," with the subtitle: "How a Famous Surgeon Combines Old-Time Religion and New-Fangled Operations on a Strange Medico-Gospel Farm." According to the article, Brinkley is a "surgeon of distinction, whose services have been recognized here and abroad," who has been awarded a "license to practice" by the Royal University of Pavia, Italy, and to whom the British Medical Association "gave similar laurels after he had passed its rigid examination." The latter, of course, is not even a clever lie. Brinkley is further described as "a thirty-second degree Mason," who has spent $50,000 on a broadcasting station, in order "to broadcast fundamentalist doctrines and denounce evolutionists" as well as to "put his medical lectures on the air." Furthermore, according to the article, Brinkley has brought a preacher, one "Dr. Charles Draper," to Milford, having, so the article states, "hired Dr. Draper at Dr. Draper's own price and paid for a picture machine and reels and built a picture house and bandstand for the local band and built benches in the park and a platform, and put a piano on it." Every Sunday and Wednesday night, we are told, "moral and religious pictures are shown."

THE "COMPOUND OPERATION" AND "GLAND EMULSION"

While Brinkley has done some magazine advertising and, because of the sensational character of his claims and the sex slant that they have, has had free newspaper publicity worth a king's ransom, his chief means of publicity is by means of his radio station, KFKB. Those who write to the station are immediately put on the Brinkley "sucker list" and receive miscellaneous printed matter and a follow-up series of letters that, seemingly, never ends. One of the advertising booklets sent out by Brinkley is entitled "The Compound Operation, or The Modern Passport to Successful Rejuvenation." A large part of the booklet is devoted to the treatment of abnormal conditions of the prostate. According to Brinkley, "taking out the prostate means impotency from which there is no relief"; therefore, he has devised "an operation to reduce the size of the prostate without danger to the patient and without producing impotency." Says Brinkley:

> "And now about wives. Don't get the impression that women are icebergs and are content with impotent husbands. I know of more families where the devil is to pay in fusses, temperamental sprees, etc.—all due to the husband not being able to function properly. Many and many times wives come to me and say, 'Doctor, my husband is no good.'"

Brinkley states that his "Compound Operation" is performed under local anesthesia and that the operation is not

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only good for reduction of inflammation and reduction of the prostate, "but it is good for High Blood Pressure, Hard Arteries and IMPOTENCY. Ah, that last one is the big factor." Brinkley says that some people have been so kind as to say that he is an authority on glands, but he modestly explains that he has not claimed this distinction himself, although he believes he has some facts on the subject. Here we are told that it was Brinkley who coined the phrase, "A man is as old as his arteries," which "thousands have confiscated as their own." As to the operation itself, let Brinkley speak:

"Now this operation, which I call 'Compound Operation,' consists of adding a new artery and nerve to the patient's own sex glands—gonads, ovaries and testicles, if you please. This artery and nerve give added nerve and blood supply. In addition to this, I add some pure, fresh, healthy animal gland tissues which act as a 'charger' (battery charger or 'fertilizer') to your glands. This animal gland tissue gives a 'kick' and with the nerve and artery added the 'Compound' combination causes your own glands to begin functioning again. Regardless of how old you may be, there is good for you in this combination."

The "compound operation" is also of value in many other conditions: "We have treated many cases of diabetes with our Compound Operation and we have seen some wonderful results"; also, "we have living monuments to our work in dementia praecox," while, when it comes to epileptics, Brinkley says he has "cured some of them." In fact:

"The Compound Operation is the best thing known for Impotency, high blood pressure, enlarged prostate, sterility (anastamosing operation), Neurasthenia, Dementia Praecox, or any disease that is not malignant of the prostate."

In discussing the results that may be expected to follow his "compound operation," Brinkley modestly admits that not every one of his cases makes a complete recovery, but he suffers from no inferiority complex. Thus:

"My batting average is high. That is what counts. . . . Well, what is my batting average? Oh, about 90 to 95 per cent! How's that?"

Persons who get on the Brinkley "sucker list" receive a letter from Brinkley about every fifteen days through every month in the year except July. Each letter urges the recipient to make reservation in the Brinkley "hospital" at the earliest possible time. In one such letter dated December 1, 1927, Brinkley throws this bouquet to the general practitioner:

"More and more are learning that their family physician, competent as he is in delivering babies, looking after sick mothers, wives and children and the acute diseases, cannot be a specialist in diseases affecting the prostate and sex glands."

Nor is the "compound operation" the only scheme that Brinkley has for separating seekers of rejuvenation from their money. He also has a "Special Gland Emulsion." This he sells on the mail-order, cash-in-advance plan. The "Emulsion" is not cheap. According to the advertisements, "one month's supply of the Emulsion is $100" and "full particulars of the case must be given by letter, enclosing cheque or draft for $100 beforehand." The purchaser gets for his money not only one month's supply of the emulsion but a rectal syringe to be used for its administration. In one of his pieces of advertising, Brinkley publishes a testimonial from one George W. Ford of Santa Ana, California, who had tried the "home treatment." Mr. Ford is quoted as stating that a partial paralysis of his right side had practically left him; that he can leave his right arm or leg uncovered when sleeping and they do not become numb; that he no longer has to walk with a cane but can now walk briskly; that his eyesight is improving, and he is satisfied that it will continue to improve, and that, as he says, "In fact, every ailment I had has improved."

Brinkley has associated with him two other persons whose names appear on the stationery of the concern as physicians —M. T. Brinkley, M.D., and H. D. Osborn, M.D. The former is Minnie T. Brinkley, the wife of Brinkley. She claims to hold a diploma from the Kansas City College of Medicine and Surgery for 1921. This is the diploma mill whose charter was revoked. She also claims a Connecticut eclectic license dated 1921. Horatius D. Osborn claims diplomas from the St. Louis College of Physicians and Surgeons for 1922, and from the diploma mill, the Kansas City College of Medicine and Surgery, also, for 1922. He, too, obtained a Connecticut license—later revoked—issued by the Eclectic Board dated 1922. Neither Minnie T. Brinkley nor H. D. Osborn is licensed to practice in Kansas.

From what has been written, it is obvious that John R. Brinkley is a blatant quack of unsavory professional antecedents. It has been reported recently that the federal commission on radio, in a drastic effort to give good radio service, is going to eliminate many broadcasting stations now operating in the United States. Just what factors will determine the weeding-out process is not altogether clear, but, in the public interest, radio stations that are operated by and for quacks would seem very properly to be among the first to be discontinued.

Correspondence

LAMBLIA INTESTINALIS

To the Editor:—In THE JOURNAL, Dec. 17, 1927, p. 2135, the results of treatment of infestation with *Lamblia intestinalis* are said to be unsatisfactory. I did quite a little work under the late Dr. Simon at Hopkins, in 1920, on this little beast, and worked with it for several years at Wuchang and at Kiukiang, China. I found that cases of diarrhea in which it could not be proved that *Lamblia intestinalis* was the cause were often relieved by the use of oil of chenopodium. I have treated several hundred cases of diarrhea in which *Lamblia intestinalis* was the only thing that could be found, and we had good results with oil of chenopodium. But it will not give good results in all cases.

I gave a magnesium sulphate purge, one ounce, in the early morning. A light breakfast, but always something to eat, was taken. At 9, 10 and 11 in the morning I gave oil of chenopodium, 8 drops in a capsule, making 24 drops in all. A full meal was allowed at noon, but after this treatment the diet was corrected.

C. MCA. WASSELL, M.D., Little Rock, Ark.

POSTGRADUATE STUDY IN EUROPE

To the Editor:—In reference to a Current Comment (THE JOURNAL, Oct. 8, 1927), I was instructed at a general meeting of the American Medical Association of Vienna held Dec. 13, 1927, to ask you to publish this letter.

The article mentioned aptly describes privately conducted organized medical European tours. The American Medical Association of Vienna appreciates your opinion of European postgraduate study and wishes to thank you for placing before the American medical public the facts as they really are. However, there are two items which our members feel should get publicity. The first is "The *so-called* American Medical Association of Vienna." Why name it so-called? The American Medical Association of Vienna was organized in 1903 by American physicians and today boasts of a life membership of more than 5,000. There are at present, and this figure can be taken as a fair average, about 200 physicians pursuing postgraduate work in Vienna, all of whom are obtaining their work through the American Medical Association of Vienna. The organization is a nonprofiting one and exists only by fees and dues paid by the members. There are 279 professors, docents and instructors of the University of Vienna all under contract to teach certain courses at a definite price to members of the American Medical Association of Vienna. These courses are arranged and paid by the office of the American Medical Association of Vienna, thereby saving the individual members the trouble and annoyance of finances with the teachers. All members of the American Medical Association of Vienna must be graduates of a recognized school and be members of their respective national medical association. About 80 per cent of our members are members in good standing of the Ameri-

can Medical Association at home. The other 20 per cent are nonresidents of the United States and are members of recognized foreign medical societies.

The second item of correction is the enumeration of the other associations in Europe. The similar so-called American Medical Association of Budapest is unfortunately defunct and there is no organization in that city to help American physicians wishing to work there.

The American University Union of London and Paris is unfortunately not known except to those who have spent some time in those cities. At best it is doubtful whether it can organize medical study to any appreciable degree. Dec. 1, 1927, the American Medical Association of Paris was organized and is now in a position to give all information concerning work in that city.

In Berlin the Amerika-Institut never was and is not functioning as a center for American physicians seeking work. Only recently the American Medical Association of Berlin was reorganized and today is in a position to give all information regarding available medical and surgical work in Berlin.

Of all the institutions, the American Medical Association of Vienna, because of its age, is probably the best equipped to save time, trouble and money for physicians wishing to do postgraduate work in this city.

MAXWELL FINEBERG, M.D., Vienna, Austria.
Secretary, American Medical Association of Vienna.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

SUDDEN LOSS OF HAIR FOLLOWING EXPOSURE TO X-RAY

To the Editor:—Have you any evidence, either direct or indirect, that is strongly indicative of the possibility of rather sudden loss of hair of the scalp being due to occasional daily exposures to radiation coming from the fluoroscope? If so, is there any treatment effective in stopping this loss of hair, which is continuing to go on? Please omit my name.

M.D., New York.

ANSWER.—Alopecia as a result of x-ray exposures does not occur without the production of a first degree reaction or erythema. It is extremely unlikely that the radiation from a fluoroscope would cause sudden loss of hair. The history suggests alopecia areata as the probable diagnosis. The treatment should be that of the latter disease.

HEALTH VALUE OF PHYSICAL CULTURE

To the Editor:—It seems to be rather generally agreed, even in well informed circles, that physical training is conducive to general health and length of life. Will you kindly inform me through your columns to what extent it has been determined scientifically that physical exercise or training such as is given in a well conducted gymnasium under a trained gymnastic director is actually conducive to health and particularly of longevity for the average individual in good health under such circumstances. I am interested in knowing what has really been determined scientifically about it.

H. B. FORBES, M.D., Ogden, Utah.

ANSWER.—There is no evidence that physical education has any influence on longevity. Pearl's studies would seem to indicate that the chief influence is heredity. It is known that the mortality of women is less than that of men and the expectation of life therefore greater. We know also that women generally do less physical work than men but the other variables, between the sexes, are so many and great that this has no sure meaning. Dublin says, "The excellent physical endowment of industrial workers assures a greater life expectation under conditions of improved industrial hygiene than is actually attained at the present time."

Arguments that cite longevity records of college athletes are fallacious because in such *post hoc propter hoc* argument one is not getting at the basic problem at all. This is just as misleading as the testimony of centenarians that they chew tobacco and don't wear rubbers. It seems that we must say, then, that there is no evidence that physical education has any influence on longevity.

Regarding the influence of exercise on health, there is little scientific information. Except for the health values of corrective exercises for the feet, for posture, for weak musculature or for constipation, there is no scientific evidence that exercise in a "well conducted gymnasium under a trained gymnastic director" influences health at all.

The health value in conditioning programs at springs, resorts and health farms is testified to by many. It is the experience of numerous persons that exercise makes one feel better; but this is opinion and not scientific fact. Some scientific data, such as the evidence that exercise increases the white cells in the blood, are not conclusive since this may be only a redistribution and not an absolute increase. By analogy, by all the related facts of growth and development it may be argued that exercise has hygienic possibilities; adequate proof that it has is not available at present.

VICARIOUS MENSTRUATION

To the Editor:—Please let me know if there is any cure for vicarious menstruation from the nose in complete amenorrhea in a girl 16 years of age, in whom there is no atresia or obstruction to the flow. The girl is apparently healthy in every other respect.

C. H. KNAUER, M.D., Mahanoy City, Pa.

ANSWER.—In every case of vicarious menstruation, the region from which the bleeding occurs should be examined carefully for evidences of abnormalities. If defects are found, an effort should be made to remedy them. In cases of vicarious menstruation in which the hemorrhage is excessive and dangerous, castration by means of radium or the roentgen ray or the removal of both ovaries may be necessary. In the case of a 16 year old girl who has never menstruated these procedures are out of the question except in the conceivable instance in which the bleeding each month is almost uncontrollable. Even in such a case the complete suppression of ovarian activity would not be justified because should normal uterine menstruation begin, the vicarious bleeding would most likely cease. If in the case cited the bleeding is excessive, a temporary inactivation of the ovaries by means of the roentgen ray or radium may be tried, but only by an experienced gynecologist and roentgenologist because of the great possibilities of permanent injury to the ovaries. The opposite effect may be attempted with the roentgen ray; namely, stimulation of the ovaries in the hope that periodic uterine bleeding will be established. For the same purpose liquor folliculi may be injected hypodermically; but it must be remembered that, since the cause of vicarious menstruation is unknown, we are groping in the dark. If the vicarious bleeding in the case cited is not excessive, it is best to do nothing other than attempt to check the bleeding by local measures.

TREATMENT OF CHRONIC INFECTION OF EUSTACHIAN TUBE

To the Editor:—1. What are the latest ideas relative to the treatment of catarrh of the eustachian tubes and middle ear? 2. Is the passing of bougies now considered good practice? 3. What is the effect of climate in these conditions, especially a warm, dry climate. If such a climate is beneficial, where is it to be found? In adults of from 35 to 40 suffering from this condition only three or four years, what is the usual prognosis as to hearing, when they have had tonsillectomy, turbinectomy and have no sinus or dental disease, but the condition still continues? What, then, is the most satisfactory line of treatment? Please omit name.

M.D., Missouri.

ANSWER.—1. There is nothing particularly new in the treatment of eustachian tube. Recently (*Lancet*, Dec. 24, 1927) Nesneld of London reported an operation for the surgical creation of new air passages in cases of deafness due to obstruction of the tubes.

2. Where there is any symptom indicative of a possible constriction of the eustachian tube, careful use of bougies is considered good practice; but one should always remember that, if inflations are used in conjunction with the passing of bougies, the inflation should be done before and not after the use of the bougies.

3. An even, warm, fairly dry climate is beneficial in those cases in which the condition is due to changes in or infections of the posterior portion of the nose, the nasopharynx or the pharynx which in turn may involve the eustachian tube and hence the middle ear. In the case of adults of from 35 to 40 years of age, if there is no sinus or other disease, the prognosis in regard to hearing is fair, provided the condition is actually limited to moderate changes in the middle ear

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mechanism; but if there is any degeneration of the auditory nerve, the prognosis as to hearing is usually poor because treatment is of no avail. In order to make a differential diagnosis between inner ear and middle ear lesions, a complete functional examination is necessary, including tuning fork tests.

VOLTAGE AND AMPERAGE IN DIATHERMY

To the Editor:—Can you give me information relative to the contention of C. M. Sampson, M.D., that a high voltage and low milliamperage is the ideal in diathermy? If his contention is true, then there is only one proper apparatus on the market.

ELLSWORTH M. TENCH, M.D. Buffalo.

ANSWER.—Electricity used medically obeys the same laws that govern it when it is used in other ways. If an electromotive force is impressed on a network of conductors, which tissue undoubtedly is, an electric current will flow through the various conductors which make up the network. The total current flowing will be the vector sum of the currents flowing in the different conductors and its effective value in amperes is equal to the total impressed effective voltage divided by the total impedance. If the frequency of the impressed voltage remains constant, the impedance of the total circuit and of the component branches of the circuit will remain constant. Therefore, if the impressed voltage is increased and the frequency kept constant, the total current is increased and also the current in each conductor of the network in the same proportion as the voltage is increased. So long as no change has taken place in the structure of the tissue, the paths in which the currents flow remain the same. Dr. Sampson's contention, then, that a high voltage and low milliamperage is the ideal in diathermy with the inference therefrom that a constant current can be sent through a fixed impedance with various voltages is without scientific foundation. Apparently Dr. Sampson is not acquainted with that characteristic of electrical machines known as regulation, and confuses the open circuit voltage of a diathermy apparatus with the voltage that is impressed on a patient.

DIPHTHERIA TOXOID FOR DIPHTHERIA PREVENTION

To the Editor:—What is your advice about the use of diphtheria toxoid (anatoxine-Ramon) for the active immunization against diphtheria? Is it safe and reliable? The H. K. Mulford Company is putting out such a package and I wish to know whether it would be preferable to the much used toxin-antitoxin.

L. W. SAUER, M.D., Evanston, Ill.

ANSWER.—Diphtheria toxoid (anatoxine-Ramon), as prepared at the serum division of the Pasteur Institute by Dr. Ramon himself, has been successfully employed in immunization against diphtheria in France and other countries. It is a routine procedure in the French army. This is also true of active immunization against tetanus with tetanus toxoid or anatoxine. From the results reported in France, where work has been done directly or indirectly under the supervision of Ramon, it appears that the immunization against diphtheria with diphtheria toxoid is safe and reliable. We do not have any information as to the efficacy and safety of commercial preparations of diphtheria toxoid made in this country. The Council on Pharmacy and Chemistry of the American Medical Association has not accepted any of these preparations for inclusion in New and Nonofficial Remedies.

OBSTETRIC PALSY

To the Editor:—What is the best treatment today of obstetric (Erb's) palsy in the new-born? It seems to me that textbooks on the subject either pass over the matter lightly or describe a treatment more applicable to older infants and children. To be more exact, I will ask you to answer the following questions: 1. What should be done for an infant 2 or 3 weeks of age? 2. How should the paralyzed arm best be supported? 3. Is there a suitable brace or other apparatus, not out of proportion to the weight of the patient, for the purpose? Please omit name and address.

M.D., Pennsylvania.

ANSWER.—First, these children should be treated as soon as the diagnosis is made, which means immediately after birth. The child's wrist should be bandaged, and by means of a clove hitch the hand tied to the head of the crib, with the shoulder abducted and the arm in external rotation.

Secondly, immediately after the wrist has been bandaged in this position, a tracing on paper should be made of the arm and a simple wire splint of the Sever type made. As soon as this is made, the bandage should be removed and the brace applied. Gentle massage and passive movement usually produce excellent improvement. In some cases it is necessary to operate, and the classic operation is that of Sever, who cuts the tendons of the pectoralis major and the subscapularis.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

ALASKA: Juneau, March 6. Sec., Dr. Harry C. De Vighne, Juneau.

CALIFORNIA: Los Angeles, Feb. 27. Sec., Dr. Charles B. Pinkham, 623 State Bldg., San Francisco.

CONNECTICUT: Hartford, March 13-14. Sec., Reg. Bd., Dr. Robert L. Rowley, 79 Elm St., Hartford. Homeo. Bd., New Haven, March 13. Sec., Dr. Edwin C. M. Hall, 82 Grand Ave., New Haven. Board of Healing Arts, New Haven, Feb. 11. Connecticut Bd. of Healing Arts, Box 1895, Yale Station, New Haven.

KANSAS: Topeka, Feb. 14. Sec., Dr. Albert S. Ross, Sabetha.

MAINE: Portland, March 13-14. Sec., Dr. Adam P. Leighton, Jr., 192 State St., Portland.

MASSACHUSETTS: Boston, March 13-15. Sec., Dr. Frank M. Vaughan, 144 State House, Boston.

MINNESOTA: Minneapolis, Jan. 17-19. Sec., Reg. Bd., Dr. A. E. Comstock, 636 Lowry Bldg., St. Paul.

NATIONAL BOARD OF MEDICAL EXAMINERS: Class A Medical Schools, Feb. 15-17. Dir., Dr. Everett S. Elwood, 1600 Walnut St., Philadelphia.

NEW HAMPSHIRE: Concord, March 8. Sec., Dr. Charles Duncan, Concord.

NEW YORK: Albany, Buffalo, New York and Syracuse, Jan. 24-27. Sec., Dr. H. Rypins, Education Bldg., Albany.

OKLAHOMA: Oklahoma City, March 13-14. Sec. Dr. J. M. Byrum, Shawnee.

PENNSYLVANIA: Philadelphia, Jan. 31-Feb. 4. Dir., Mr. C. D. Koch, Harrisburg.

PHILIPPINE ISLANDS: Manila, Feb. 14. Sec., Dr. Josè V. Gloria, 686 Ave. Rizel, Manila.

PORTO RICO: San Juan, March 6. Sec., Dr. Diego A. Biascoechea, 3 Allen St., San Juan.

SOUTH DAKOTA: Pierre, Jan. 17. Dir., Dr. H. R. Kenaston, Bonesteel.

VERMONT: Burlington, Feb. 14. Sec., Dr. W. Scott Nay, Underhill.

WASHINGTON: Seattle, Jan. 16. Dir., Reg. Bd., Mr. Chas. R. Maybury, Olympia. Dir., Basic Science Bd., Mr. Chas. R. Maybury, Olympia.

WEST VIRGINIA: Charleston, Feb. 8. State Health Commissioner, Dr. W. T. Henshaw, Charleston.

WISCONSIN: Madison, March 17. Sec., Basic Science Bd., Prof. M. F. Guyer, U. of Wisconsin.

WYOMING: Cheyenne, Feb. 1-3. Sec., Dr. G. M. Anderson, Citizens Bank Bldg., Cheyenne.

New Hampshire September Examination

Dr. Charles Duncan, secretary of the New Hampshire State Board of Medical Examiners, reports the oral, written and practical examination held at Concord, Sept. 8-9, 1927. The examination covered 10 subjects and included 80 questions. An average of 75 per cent was required to pass. Three candidates were examined, all of whom passed. Twelve candidates were licensed by reciprocity. The following colleges were represented:

College PASSED	Year Grad.	Number Passed
Tufts College Medical School	(1927)	2
University of Montreal Faculty of Medicine	(1924)	1

College LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Boston University School of Medicine	(1914) (1916) New York; (1924) Maine	Mass.
Tufts College Medical School	(1926)	Mass.
Dartmouth Medical School	(1893)	Mass.
University of Tennessee College of Medicine	(1898)	Vermont
University of Vermont College of Medicine	(1898), (1926)	Vermont
Dalhousie University Faculty of Medicine	(1926)	New York
Laval University Faculty of Medicine	(1913), (1926)	Maine
McGill University Faculty of Medicine	(1926)	Maine

North Carolina June Examination

Dr. John W. MacConnell, secretary of the North Carolina Board of Medical Examiners, reports the written examination held at Raleigh, June 21, 1927. The examination covered 16 subjects and included 70 questions. An average of 80 per cent was required to pass. Ninety candidates were examined, all of whom passed. Twenty candidates were licensed by endorsement of their credentials. The following colleges were represented:

College PASSED	Year Grad.	Per Cent
University of Arkansas School of Medicine	(1926)	85
George Washington University Medical School	(1927)	83, 89
Howard University School of Medicine	(1926)	82, 82, 82, 84
Emory University School of Medicine	(1925) (1927)	84, 90, 85, 86, 89, 89
University of Louisville School of Medicine	(1927)	89
Tulane Univ. of Louisiana School of Med.	(1927)	83, 89, 90, 91
Johns Hopkins University School of Medicine	(1927)	91
University of Maryland School of Medicine and the College of Physicians and Surgeons	(1927)	86, 92, 93
Washington University School of Medicine	(1927)	90, 92, 94

University and Bellevue Hospital Medical College.....(1927) 90
University of Cincinnati College of Medicine.....(1927)* 93
Jefferson Medical College of Philadelphia.....(1927) 86, 86, 87, 88, 89, 89, 91, 94, 94
University of Pennsylvania School of Medicine.....(1924) 89, (1925) 94, (1926) 95, (1927) 88, 88, 89, 89, 89, 90, 90, 90, 91, 92, 92, 92, 93, 95, 95
University of Pittsburgh School of Medicine.....(1927) 90
Woman's Medical College of Pennsylvania..(1924) 82, (1925) 83, 91
Medical College of the State of South Carolina.....(1925) 84, 88, (1927) 80, 83, 85, 85, 86
Meharry Medical College.....(1926) 81, 85, 89, (1927) 80, 81, 87
Medical College of Virginia.....(1926) 92, (1927) 83, 83, 85, 85, 86, 87, 87, 87, 87, 88, 89, 90, 92, 92, 94
University of Virginia Department of Medicine.....(1923) 93, (1927) 86, 90

College	LICENSED BY ENDORSEMENT	Year Grad.	Endorsement with
University of Georgia Medical Department		(1909)	S. Carolina
(1917), (1922) Georgia			
University of Louisville School of Medicine		(1915)	Kentucky
Johns Hopkins University School of Medicine		(1917)	N. B. M. Ex.
University of Maryland School of Medicine and the College of Physicians and Surgeons		(1914)	S. Carolina
College of Physicians and Surgeons, New York City		(1889)	Maine
University of Pennsylvania School of Medicine (1904) Pennsylvania		(1897)	New York
Woman's Medical College of Pennsylvania		(1921)	Penna.
Med. College of the State of South Carolina (1916), (1922) South Carolina		(1901), (1915)	S. Carolina
Chattanooga Medical College		(1894)	S. Carolina
University of Texas School of Medicine		(1919)	Texas
University of Vermont College of Medicine		(1902)	New York
University of Virginia Department of Medicine		(1902)	W. Virginia
University of Toronto Faculty of Medicine		(1916)	Ontario
University of Debreczen, Hungary		(1922)	New York

* This candidate will receive his M.D. degree on completion of one year's internship in a hospital.

Kansas June Examination

Dr. Albert S. Ross, secretary of the Kansas State Board of Medical Registration and Examiners, reports the written examination held at Kansas City, June 21, 1927. The examination covered 10 subjects and included 100 questions. An average of 75 per cent was required to pass. Forty-eight candidates were examined, all of whom passed. Nine candidates were licensed by reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent
Northwestern University Medical School		(1927)	86.7, 87.1
University of Kansas School of Medicine		(1927)	82.3, 83.5, 84.4, 85.4, 86, 86.5, 86.5, 87.3, 87.6, 87.8, 87.8, 88.7, 88.7, 89.3, 89.7, 89.7, 89.8, 89.9, 89.9, 89.9, 90, 90.3, 90.3, 90.4, 90.9, 91, 91.2, 92.1, 92.1, 93.1
Harvard University Medical School		(1926)	90.7
St. Louis University School of Medicine		(1926) (1927)	84.2, 86.2 84.6, 84.9, 88.2, 88.3
University Medical College of Kansas City		(1899)	89.7
Washington University School of Medicine		(1926)	81.7 86.1, 87.1, 87.7, 88.6, 89.7
Creighton University School of Medicine		(1926)	89.6, 91.3

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Rush Medical College		(1922)	California
Indiana University School of Medicine		(1916)	Indiana
State University of Iowa College of Medicine		(1925)	Iowa
Johns Hopkins University School of Medicine		(1925)	Maryland
University of Michigan Medical School		(1916)	Michigan
University of Minnesota Medical School		(1927)	Minnesota
Barnes Medical College, St. Louis		(1905)	Illinois
St. Louis University School of Medicine		(1926)	Utah
Washington University School of Medicine		(1908)	Oklahoma

Texas June Examination

Dr. T. J. Crowe, secretary of the Texas Board of Medical Examiners, reports the written examination held at Austin, June 21-23, 1927. The examination covered 12 subjects and included 120 questions. An average of 75 per cent was required to pass. Of the 107 candidates examined, 106, including 1 osteopath, passed, and 1 candidate, an osteopath, failed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent
Tulane University of Louisiana School of Medicine		(1926) (1927)	90, 90.3, 91
Harvard University Medical School		(1924)	86.1
Jefferson Medical College of Philadelphia		(1926)	87.8
Meharry Medical College		(1927)	82.6, 98.4
Baylor University College of Medicine		(1927)	80, 81, 82.4, 82.6, 82.7, 83, 83.2, 83.3, 83.5, 83.6, 84.3, 84.4, 84.5, 84.5, 84.6, 84.9, 84.9, 85.2, 85.2, 85.3, 85.5, 85.5, 85.5, 85.6, 86.3, 86.5, 86.9, 87, 87.2, 87.3, 87.3, 87.6, 88.1, 88.9, 89.1, 89.4, 89.6, 90, 90, 90.4, 90.5, 91.5
University of Texas School of Medicine		(1927)	78.9, 84.1, 84.2, 84.6, 85.5, 86, 86.3, 86.4, 86.5, 86.6, 87, 87.2, 87.4, 87.4, 87.4, 87.5, 87.7, 87.8, 88.3, 88.3, 88.5, 88.6, 88.6, 88.7, 88.8, 89.1, 89.2, 89.3, 89.5, 89.5, 89.5 89.6, 89.6, 89.9, 90.1, 90.1, 90.3, 90.3, 90.5, 90.9, 91, 91, 91.4, 92, 92.6, 93.1
University of Palermo, Italy		(1922)*	80.5
Mexico Military College		(1922)*	83.9, 85
National School of Medicine, Mexico (1905) 84.5, (1920) 84.3, (1921) 79.9, 85		(1897)	76.8,
National University S. E. de Mexico Meridia, Yucatan, Mexico		(1896)*	75.3
School of Medicine and Pharmacy of Jalisco, Guadalajara		(1921)*	88.2
Osteopath			84

College	FAILED	Year Grad.	Per Cent
Osteopath			71

* Verification of graduation in process.

Connecticut November Examination

Dr. Robert L. Rowley, secretary of the Connecticut Medical Examining Board, reports the written examination held at Hartford, Nov. 8-9, 1927. The examination covered 7 subjects and included 70 questions. An average of 75 per cent was required to pass. Of the 23 candidates examined, 21 passed and 2 failed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent
Yale University School of Medicine		(1926)	79.6, 86.5, (1927) 83.2, 87.7
George Washington University Medical School		(1927)	84.5
Georgetown University School of Med.		(1926)	87.7, (1927) 82.6, 84
University of Maryland School of Medicine and the College of Physicians and Surgeons		(1927)	83.2
Boston University School of Medicine		(1927)	83.3, 84
Tufts College Medical School		(1927)	77, 77, 77.3, 79.1, 82
University and Bellevue Hospital Medical College		(1927)	83.4
Jefferson Medical College of Philadelphia		(1926)	84.5
McGill University Faculty of Medicine		(1924)	78.2, 83.7
Queen's University Faculty of Medicine		(1909)	83.6

College	FAILED	Year Grad.	Per Cent
Yale University School of Medicine		(1927)	75.5
Tufts College Medical School		(1927)	69.2

Dr. Rowley also reports that 11 candidates were licensed by endorsement of their credentials, Nov. 22, 1927. The following colleges were represented:

College	LICNSED BY ENDORSEMENT	Year Grad.	Endorsement with
Johns Hopkins University School of Medicine (1921) New York		(1913)	Maryland
Harvard Univ. Med. School		(1919)	N. B. M. Ex., (1924) New York
University of Michigan Medical School		(1912)	California
Cornell University Medical College		(1920), (1921)	New York
University of Vermont College of Medicine		(1923)	Vermont
University of Virginia Department of Medicine		(1899)	Virginia
University of Naples, Italy		(1892)*	New York
University of Geneva, Switzerland		(1921)*	Maryland

* Verification of graduation in process.

Colorado April Examination

Dr. David A. Strickler, former secretary of the Colorado State Board of Medical Examiners, reports the written examination held at Denver, April 5, 1927. The examination covered 8 subjects and included 80 questions. An average of 75 per cent was required to pass. Of the 26 candidates examined, 16, including 5 osteopaths and 1 undergraduate, passed, and 10 candidates, including 3 undergraduates, failed. Nine candidates were licensed by reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent
Rush Medical College		(1926)	83.4
Kansas City College of Medicine and Surgery		(1924)	75.1
Kansas City University of Physicians and Surgeons		(1927)	83.6, 88.4
St. Louis College of Physicians and Surgeons (1927) 76.5, 79.3, 87.5		(1926)	75.5,
Marquette University School of Medicine		(1927)	80.1
University of Berlin, Germany		(1923)*	76.7
Osteopaths		76.7, 78.9, 79, 79.4,	81.6
Undergraduate			81.4

College	FAILED	Year Grad.	Per Cent
Kansas City College of Medicine and Surgery		(1921)	63
Kansas City University of Physicians and Surgeons		(1922)	57.4
St. Louis College of Physicians and Surgeons (1924) 67.9; (1925) 72.4; (1926) 63.1		(1923)	54.3,
Medical College, Sun-Ville, China		(1920)†	45.3
Undergraduates		60.7,	65.3, 65.6

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
George Washington University Medical School		(1920)	Virginia
State University of Iowa College of Medicine		(1922)	Ohio
Missouri Medical College, St. Louis		(1889)	Missouri
University of Nebraska College of Medicine		(1925, 2)	Nebraska
University of Buffalo School of Medicine		(1889)	Oklahoma
Miami Medical College, Cincinnati		(1906)	Minnesota
Medical College of Virginia		(1911)	Virginia
Royal Hungarian University of Science, Budapest		(1921)*	Montana

* Verification of graduation in process.
† No record of college.

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Book Notices

OUR TIMES: THE UNITED STATES, 1900-1925. II. America Finding Herself. By Mark Sullivan. Cloth. Price, $5. Pp. 668, with illustrations. New York: Charles Scribner's Sons, 1927.

The anxiously awaited second volume of Mr. Mark Sullivan's history of the last century in America is now available. It has all of the human interest that was attached to the first volume, although it has not as a predominating motive or theme the accomplishments of preventive medicine which dominated the former volume. The first twelve chapters of the present volume are devoted to the background of American education, which give rise to the type of American mind that we know today. Much attention is paid to McGuffey's readers, the classes in elocution, the spellers and the American common schools. Mr. Sullivan then turns his attention to the growth of Theodore Roosevelt, changes in the newspapers and the development of the great trusts. One of the chapters of special interest to physicians is that on the crusade for pure food. Mr. Sullivan credits the beginning of the campaign to the publication of Upton Sinclair's book "The Jungle." He then considers the development of the Food and Drugs bill and the influence on the proprietary medicine business of the publication of Mr. Samuel Hopkins Adams' "Great American Fraud." He recognizes the leadership of Dr. H. W. Wiley. He also credits Dr. C. A. L. Reed of Cincinnati, who represented the American Medical Association committee, with bringing about a change of heart on the part of Senator N. W. Aldrich, chief in the opposition to the bill. The volume concludes with a discussion of the development of aviation and with a month by month analysis of the years 1904 and 1905. Every reader of history will enjoy the interesting sidelights of this story of our times, particularly its reflection on the manner in which the mind of the average man is made up.

SOBRE ETIOLOGÍA DE LA TUBERCULOSIS Y DEL ARTRITISMO. Por el Dr. Aquileo Claramunt. Paper. Pp. 38. Montevideo, 1927.

Arguments are presented for a relation between the carbon dioxide of the blood and the development of pulmonary tuberculosis and arthritis. The joint diseases develop from low carbon dioxide tensions and hyposensitive respiratory centers, and tuberculosis from the converse of such conditions, a high carbon dioxide tension in the blood and oversensitiveness of the nerve centers for respiration. The discussion presented is interesting since it has to do with a great deal that is modern about respiration. There is, however, but little of evidence from clinical observations or experiments in support of what the author advocates.

THE SUICIDE PROBLEM IN THE UNITED STATES. By Adolph Dominic Frenay, O.P., Ph.D. Cloth. Pp. 200. Boston: Richard G. Badger, 1927.

In this volume the author has considered the statistics of suicide as concerned by all of the many factors that may have some influence on them. He provides adequate data concerning racial aspects, economic, institutional, psychologic and national points of view, as well as the means employed for suicide in various instances. He concludes with a chapter on the religious aspects of suicide, indicating that the Catholic religion provides methods leading to a lowering of the suicide rate. The obvious Catholic leanings of the author must of course be taken into account in considering his points of view. Regardless of this, however, his book provides a considerable amount of valuable data, such as are not easily available elsewhere.

AMERICA'S HUMAN WEALTH. The Money Value of Human Life. By Edward A. Woods, M.A., and Clarence B. Metzer, M.A. Cloth. Price, $2. Pp. 193. New York: F. S. Crofts & Co., 1927.

This book has been prepared primarily to give those who are selling human health to the public statistical financial arguments that are exceptionally convincing. For instance, it is shown that the building of a filtration plant costing $6,500,000 in Pittsburgh saved that city $18,600,000 in a period of seven years, and that this does not include the capital value of the 8,000 lives that were saved. One authority has estimated the productive value of our increased length of life at $3,500,000,000 a year. There are various estimates as to the money valuation of a human being. Slave values in ancient nations varied from 30 shekels for a Babylonian slave, amounting to $21.90 in our modern money, to $2,000 for a "prime hand" in the South just before the war. The value of a free man varied from 600 shillings and 600 cows, among the Frank communities, amounting to $45,960 in modern money, to $11.90 among the Anglo-Saxons of the same period. Modern estimates vary from $895 to $13,000, according to the statistician concerned. The general average indicates $10,377 as the productive value of a life at the average age at death. The booklet is full of interesting estimates and data of human values. It costs society somewhere between $5,000 and $10,000 to raise a child to productive age. The money value of the population is dependent on the individual's ability to earn an income over a period of years. All together, the money value of the people is the country's greatest asset. The book is completed by some appendixes with tabular data and an excellent bibliography and index.

HANDBUCH DER INNEREN SEKRETION: Eine umfassende Darstellung der Anatomie, Physiologie, und Pathologie der endokrinen Drüsen. Herausgegeben von Max Hirsch. Band II. Lieferung 3. Paper. Price, 42 marks. Pp. 423-926, with illustrations. Leipsic: Curt Kabitzsch, 1927.

This part of the large work under the title mentioned contains a short chapter on the physiology of the thymus by Dr. E. Thomas of Cologne, and a short chapter on the physiology of the salivary glands, the gastro-intestinal mucosa, the liver and the spleen as endocrine organs by Dr. Zuelzer of Berlin; but the meat of the monograph is the chapter of 380 pages with forty-seven well selected illustrations on the physiology of the suprarenal glands by Dr. G. Bayer of Innsbruck. This is one of the most comprehensive, scientific and critical presentations of the normal and pathologic physiology of the suprarenal glands in present literature. At the end of each chapter is a list of references to important recent articles in the field. At the close of the chapter on the suprarenals by Dr. Bayer the literature citations, essentially publications for the years 1916-1926, make up thirty-two pages. The volume is worth more than its price on the basis of this excellent chapter of Dr. Bayer's alone. The chapter by Dr. Zuelzer is weakened by Dr. Zuelzer's attempt to reestablish his "hormonale" theory of gastro-intestinal motility, namely, that the intestinal mucosa in combination with the spleen produces a hormone ("hormonale") which is the normal mechanism governing gastro-intestinal peristalsis.

HYPNOSIS. By Prof. Paul Schilder, M.D., Ph.D., and Dr. Otto Kauders, Assistant of the Psychiatric Clinic, Vienna. Translated by Simon Rothenberg, M.D., Attending Neurologist, the Jewish and Israel-Zion Hospitals, Brooklyn, N. Y. Nervous and Mental Disease Monograph Series No. 46. Cloth. Price, $2.50. Pp. 118. New York: Nervous and Mental Disease Publishing Company, 1927.

In this brief volume the authors give the fundamental facts of importance in relation to hypnosis and discuss the psychologic observations that have been made in this field. A chapter on the psychoanalytic theory of hypnosis considers Ferenczi's view that hypnosis is a resuscitation of infantile erotic masochistic adjustments. The authors are inclined to accept a love relationship in determining the powers of hypnosis. They are not willing to accept direct physical influences, but believe that physiologic factors are of importance. The final chapters deal with the uses of hypnosis in the treatment of psychic disorders.

DUDLEY ALLEN SARGENT: An Autobiography. Edited by Ledyard W. Sargent. With an introduction by R. Tait McKenzie, M.D. Cloth. Price, $2. Pp. 221, with portrait. Philadelphia: Lea & Febiger, 1927.

A pioneer in American physical education has here left to his successors an account of his professional development, which includes a history of the development of physical education in America. The leadership exercised by Dr. Sargent at Harvard meant much for all of physical education in this country. Dr. Sargent graduated from Yale University Medical School in January, 1878, at the same time beginning his work in gymnastics. He discusses the development of gymnastic apparatus and the establishing of the Sargent School of Physical Education. The book is of value not only for the data that it provides, but also for its exceedingly human interest.

Books Received

Books received are acknowledged in this column, and such acknowledgment must be regarded as a sufficient return for the courtesy of the sender. Selections will be made for more extensive review in the interests of our readers and as space permits. Books listed in this department are not available for lending. Any information concerning them will be supplied on request.

WHATEVER WE DO. By Allan Updegraff. Cloth. Price, $2.50 net. Pp. 431. New York: John Day Company, 1927.

Modern novel of general interest.

DIE CHIRURGIE. Eine zusammenfassende Darstellung der allgemeinen und der speziellen Chirurgie. Herausgegeben von Prof. Dr. M. Kirschner und Prof. Dr. O. Nordmann. Band II. Lieferung 19. Die Vorbehandlung, der Verband und die Nachbehandlung bei chirurgischen Eingriffen. Von Prof. Dr. O. Nordmann, Die plastischen Operationen der Haut. Von Dr. K. Tiesenhausen. Paper. Price, 14 marks. Pp. 393-602, with 208 illustrations. Berlin: Urban & Schwarzenberg, 1927.

FIGHTERS OF FATE. A Story of Men and Women Who Have Achieved Greatly Despite the Handicaps of the Great White Plague. By J. Arthur Myers, Associate Professor of Preventive Medicine, Medical and Graduate Schools, University of Minnesota. With an introduction by Charles H. Mayo, Mayo Clinic, Rochester, Minnesota. Cloth. Price, $3. Pp. 318. Baltimore: Williams & Wilkins Company, 1927.

RADIUM IN GYNECOLOGY. By John G. Clark, M.D., and Charles C. Norris, M.D., Professor of Obstetrics and Gynecology, University of Pennsylvania. With a chapter on Physics by Gioacchino Failla, E.E., M.A., D.Sc., Physicist, Memorial Hospital, New York. Cloth. Price, $8. Pp. 315, with 49 illustrations. Philadelphia: J. B. Lippincott Company, 1927.

OUTLINES OF PATHOLOGY IN ITS HISTORICAL, PHILOSOPHICAL AND SCIENTIFIC FOUNDATIONS. A Guide for Students and Practitioners of Medicine. By Horst Oertel, Strathcona Professor of Pathology, McGill University, Montreal, Canada. Cloth. Price, $10 net. Pp. 479, with 132 illustrations. Montreal: Renouf Publishing Company, 1927.

APPENDICITIS. By Hubert Ashley Royster, A. B., M.D., Surgeon to Rex Hospital, Raleigh, N. C. Surgical Monographs under the editorial supervision of Dean Lewis, A.B., M.D., Eugene H. Pool, A.B., M.D., and Arthur W. Elting, A.B., M.D. Cloth. Price, $7. Pp. 370, with 58 illustrations. New York: D. Appleton & Company, 1927.

LEHRBUCH DER SPEZIELLEN PATHOLOGIE UND THERAPIE DER INNEREN KRANKHEITEN: Für Studierende und Aerzte. Von Professor Dr. Med. Adolf Strümpell. Band II. Twenty-sixth edition by Professor Dr. Med. Phil. Carly Seyfarth. Paper. Price, 50 marks. Pp. 982, with 208 illustrations. Leipsic: F. C. W. Vogel, 1927.

HANDBUCH DER INNEREN SEKRETION: Eine umfassende Darstellung der Anatomie, Physiologie, und Pathologie der endokrinen Drüsen. Herausgegeben von Max Hirsch. Band II. Lieferung 3. Paper. Price, 42 marks. Pp. 423-926, with illustrations. Leipsic: Curt Kabitzsch, 1927.

HISTOLOGIE UND CHEMIE DER LIPOIDE DER WEISSEN Blutzellen und ihre Beziehung zur Oxydasereaktion, sowie über den Stand der modernen Histologie der Zellipoide. Von Dr. Ernst Sehrt. Paper. Price, 6 marks. Pp. 53, with 9 illustrations. Leipsic: Georg Thieme, 1927.

LEHRBUCH UND ATLAS DER LAPARO- UND THORAKOSKOPIE. Von Dr. Roger Korbsch, leitender Arzt der inneren Abteilung des St. Elisabeth-Krankenhauses in Oberhausen. Cloth. Price, 12 marks. Pp. 58, with 15 plates. Munich: J. F. Lehmanns, 1927.

GRUNDRISS DER KLINISCHEN THERAPIE INNERER KRANKHEITEN. Von Prof. Dr. Georg Klemperer, Direktor der IV. medizinischen Universitätsklinik, in Berlin. Third edition. Paper. Price, 6 marks. Pp. 308. Berlin: Urban & Schwarzenberg, 1927.

BACTERIAL VACCINES AND THEIR POSITION IN THERAPEUTICS. By Leonard S. Dudgeon, C.M.G., C.B.E., F.R.C.P., Professor of Pathology, University of London. Cloth. Price, $2.50. Pp. 87. New York: Paul B. Hoeber, Inc, 1927.

FISIOLOGIA, FISIOPATOLOGIA Y CLINICA DE LAS GLÁNDULAS DE SECRECIÓN INTERNA. (Traducido del catalán.) Por Leandro Cervera. Paper Price, 4 Ptas. Pp. 162. Barcelona: Arnau de Vilanova, 1927.

LA ELECTROCARDIOGRAFÍA EN EL DIAGNÓSTICO DE LAS ENFERMEDADES DEL CORAZÓN. (Traducida del catalán.) Paper. Price, 4 Ptas. Pp. 139, with 45 illustrations. Barcelona: Arnau de Vilanova, 1927.

OVER spirochaetosis bronchialis narr aanleiding van een waargenomen geval. Door Douwe van der Kooi. Paper. Pp. 52. Leeuwarden: Douwe van der Kooi, 1927.

THE STANDARDIZATION OF ERROR. By Vilhjalmur Stefansson, M.A., LL.D. Cloth. Price, $1. Pp. 83. New York: W. W. Norton & Company, Inc., 1927.

LA CATEGORIA DEI DENTI MOLARI DELL'UOMO. Por Dott. Siro Taviani. Paper. Pp. 374, with illustrations. Florence, 1927.

EL PSICO-ANÁLISIS. Por el Dr. Emilio Mira. Paper. Price, 4 Ptas. Pp. 162. Barcelona: Arnau de Vilanova, 1927.

LA DYSPEPSIE SIMPLIFIÉE. Par Dr. L. Pascault. Paper. Pp. 94. Paris: La Clinique, 1927.

Medicolegal

Proper Revocation of Certificate—"Gross Immorality"

(Seitz v. Ohio State Medical Board (Ohio), 157 N. E. R. 304)

The Court of Appeals of Ohio, Scioto County, in affirming a judgment which revoked the certificate of defendant Seitz to practice medicine in that state, says that prior to the trial in the court of common pleas he filed a motion to require the medical board to file a petition setting forth the issues on which the case was to be tried. There was no error in overruling that motion. The Ohio statute authorizes no pleadings, but contemplates that the case on appeal (from an order of the state medical board) shall be heard in the common pleas on the issues raised before the medical board. This is no novelty in practice. Appeals from administrative boards to judicial tribunals have long been entertained in Ohio, and, so far as this court knows, uniformly with no new pleadings in the judicial tribunal.

The state introduced in testimony a certified copy of the journal entries in the federal court in the case of the *United States* v. *William Seitz*. It was clear enough that the judgment of the federal court was that the defendant unlawfully, knowingly, wilfully and feloniously sold narcotics in violation of the Harrison narcotic act, and that he had been guilty of twenty-five different violations of that law during the time covered by the indictment. He proposed to prove that he had not prescribed narcotics solely for the purpose of satisfying the appetite of any drug addict. This line of testimony the court refused to receive, and in such refusal it was right. The judgment of the federal court was conclusive of his guilt and it was not competent for him to retry that question in this proceeding.

Section 1275 of the general code of Ohio authorizes the state medical board to suspend or revoke the certificate of a practicing physician who has been found "at any time guilty of felony or gross immorality."

The defendant argued that the record did not justify the revocation of his certificate because it did not show him to have been guilty either of a felony or of gross immorality. Under the Ohio statute, a felony is an offense which may be punished by death or by imprisonment in the penitentiary. By the federal statutes, felonies are all offenses which may be punished by death or imprisonment for a term exceeding one year. In section 6287*o* of the United States compiled statutes, relating to trafficking in narcotics, it is provided that one violating that act shall on conviction be fined not more than $2,000 or be imprisoned not more than five years, or both, in the discretion of the court. The defendant contended that, as he was only committed to the county jail for six months, the effect of that sentence was to make his offense a misdemeanor and not a felony. The rule generally is that an offense is a felony if it may be punished by imprisonment in the penitentiary, regardless of what penalty actually is imposed. The trial court must have found that the defendant had been convicted of a felony.

During the progress of the trial counsel for the medical board said that, while the defendant was charged with gross immorality, the only facts in support of that charge were the facts forming the basis of the case on which he had been convicted in the federal court. The term "gross immorality" has received no hard and fast definition and is probably insusceptible of one. It is descriptive of a course of conduct, and courts have widely differed on the application of this and similar terms to given states of fact. In West Virginia the court of appeals says that gross immorality must be determined according to the common understanding of the ordinary, law-abiding and reasonable citizens of the country; that the term implies a wilful, flagrant or shameful course of conduct, showing a moral indifference to the opinions of the good and respectable members of the community and to the just obligations of the position held by the delinquent. Adopting the view laid down by the West Virginia court, rather than the more radical, opposing views of the Tennessee and Kansas courts, this court is of the opinion that a

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physician guilty of twenty-five violations of the antinarcotic law has thereby shown such a contempt of the opinion of the respectable members of the community, and such an indifference to the obligations that rest on him in the exercise of the responsible duties of his exalted calling, that the minds of men can hardly differ on the proposition that he has dishonored himself, disgraced his profession, and been grossly immoral. If, therefore, the conviction in the federal court were not of itself such a felony as would warrant the revocation of the certificate in this case, the facts on which that conviction was based would have been such gross immorality as to have required the revocation of the certificate.

Holdings as to Drugless Healers and Physicians

(Brooks v. Herd (Wash.), 257 Pac. R. 238)

The Supreme Court of Washington says that the defendant was licensed to practice "mechano-therapy," and that the plaintiff brought this action to recover damages for alleged reckless and negligent treatment by him of a venereal disease (gonorrhea) from which the plaintiff was suffering. In general, the court submitted the case to the jury on perfectly proper instructions as to the law governing the relations of physicians and patients. Under the Washington statutes, drugless healers are strictly limited each to his own school of practice, and forbidden to invade the field of practice of any other school of drugless healing or of any regular school of healing; otherwise, the principles of law governing the relations of regular physicians and surgeons and their patients govern as to drugless healers and their patients. The court in general gave the same instructions in this case as should be given in an ordinary malpractice case by a patient against a practitioner of a regular school of healing, for negligent care and treatment. The law is well settled that a physician may contract specially to cure and is liable on his contract for failure. Whether that was the contract was a question of fact in this case.

A portion of an instruction given the jury was that, when the drugless healer takes charge of a case and is employed to attend a patient, his employment, as well as the relationship between the healer and the patient, continues until his services are no longer needed. The instruction, of course, in itself was not very complete. Another instruction was given, however, to the effect that, when a patient goes to a physician and accepts the professional skill of such physician, it is the duty of the patient to follow the advice of the physician, and, if he fails to follow the advice of the physician and something untoward happens to the patient which would not have happened or was not the physician's negligence, then the physician would not be liable, and, if the plaintiff failed to follow the advice of the defendant and thereby aggravated the ailment, the jury should find for the defendant. These instructions, taken as a whole, correctly state the law as to the respective duties of physician and patient toward each other.

The court also further instructed the jury, as would be proper in a case involving a regular school of medicine, that part of the correct treatment of a case is the careful and proper determination by the drugless healer or physician as to when the relation of physician and patient shall end, and that the relation continues until the services are no longer needed. It was further stated that the unwarranted abandonment of the case at a critical period by the drugless healer, or his discharge of the patient as cured when not cured, resulting in increased pain and suffering on the part of the patient, would render the drugless healer liable.

An instruction requested by the defendant to the effect that, if, while he was treating the plaintiff and before he pronounced him cured, the plaintiff failed, neglected and refused to return to the defendant for further treatment, the jury should find for the defendant, was incorrect in law. While it would have been appropriate under the issues in this case for the court to give some instruction along that line, the instruction requested did not include the idea that the plaintiff's absenting of himself from the defendant for treatment was without cause or reason and whether a reasonable time (in the absence of an agreed time) had elapsed in which to effect a cure, and that it would be for the jury to determine under the issues and facts whether the cause of the failure to cure the plaintiff, if there was such failure, was due to such wilful absence from treatment or to some other cause.

This court is at a loss to understand on what theory the jury was instructed that the plaintiff could recover for mental suffering. There was no allegation or proof of any mental suffering. Nothing was alleged or shown but physical injury. On such issues no physician or surgeon ought to be held liable for mental suffering. How much the jury allowed for this item, this court cannot determine, and because it was submitted to the jury as a item of damage, this court is obliged to reverse the judgment rendered in favor of the plaintiff.

Another error complained of was in permitting the plaintiff to testify in redirect examination that the defendant also failed to cure his brother of the same disease. Neither party was entitled to show the skill or lack of skill, care or lack of care, negligence or lack of negligence, on the part of the physician in other cases or instances.

Injury to Nurse Going from Hospital to Home

(Favorite v. Kalamazoo State Hospital et al. (Mich.), 214 N. W. R. 229)

The Supreme Court of Michigan says that the findings of the commission in this proceeding under the workmen's compensation act disclosed that on Jan. 18, 1926, the plaintiff was employed in the defendant hospital as a nurse; that she lived in the nurses' home which was about 20 rods from the building in which she worked; that a concrete sidewalk led from one of these buildings to the other; that her regular hours of work were from 8 a. m. to 8 p. m., but she was subject to be called in an emergency at any time; that on the evening of the date mentioned above she left the place of her employment at about 8 o'clock to go to the home; that in passing along the walk she slipped and fell on the icy surface thereof, and sustained quite severe injuries. Her claim for compensation was resisted on the ground that the accident did not arise out of and in the course of her employment. The commission found that the accident arose in the course of her employment, but did not arise out of such employment, and declined to make an award. Both of these requirements must be met to justify an award.

The supreme court feels constrained to disagree with the commission in their finding that the accident did not arise out of the plaintiff's employment. The nurses' home on the hospital grounds was provided as a place in which these employees should live. It is apparent that one of the purposes of maintaining it was to secure the proximity of the nurses to the building in which those under their care were kept, so that they might quickly respond to the call at other than regular hours of work. It was for this reason that their contracts of employment required them to remain at the home during certain hours when off duty. It seems clear that, while going to and returning from the home, the plaintiff was in the ambit of her employment. A concrete walk was provided, on which she might travel. Her use of it was no different from that to which the hallways and stairs in the hospital buildings would have been put, had the living quarters of the nurses been located therein. The accident was directly attributable to her employment. While her rest period had arrived, she might, under her contract of employment, have been called into service, had an emergency arisen requiring it, at any moment after she had reached the home, had she got there in safety. It was urged that her accident was due to the icy condition of the walk, one of the common risks to which the general public was exposed, and therefore not incidental to her employment. But it was a private walk on the grounds of the hospital, constructed for the use of its employees. By reason of her employment, the plaintiff was passing along it at the time of the accident, and the hazard of its icy condition was incidental thereto. Wherefore the order of the commission denying compensation is set aside, and the record remanded to the commission, to fix the amount of compensation to which the plaintiff is entitled under the law.

Society Proceedings

COMING MEETINGS

American College of Physicians, New Orleans, March 5-9. Mr. E. R. Loveland, The Covington, 37th and Chestnut Streets, Philadelphia, Sec'y.

WESTERN SURGICAL ASSOCIATION

Thirty-Seventh Annual Meeting, held at Omaha, Dec. 8-9, 1927

The President, DR. LEWIS H. MCKINNIE, Colorado Springs, Colo., in the Chair

Prophylactic Gastrostomy

DR. E. P. QUAIN, Bismarck, N. D.: The use of the stomach tube to relieve postoperative distention and emesis is distressing and often abhorrent to patients. Overdistention after suturing the gastric wall (and other hollow organs) is a probable cause of hemorrhage and leakage. In order to obviate the use of the stomach tube and to produce collapse of the stomach and duodenum and thereby insure safer healing, I made a temporary gastrostomy in sixteen upper abdominal operations of a serious nature in which postoperative regurgitation was to be expected. The sixteen cases included four large ventral, complicated hernias; one acute and three chronic perforations of a duodenal ulcer; two seriously complicated cases of cholelithiasis; two posterior duodenal diverticula, and four cases of visceroptosis in which the technic produced much peritoneal trauma. Although the operations were very extensive and traumatizing in nature, the immediate postoperative condition in all was comfortable and pleasing when compared with former methods. There was no distention and no emesis. The patient could drink water freely, the excess fluid producing gastric lavage as desired by unclamping the gastrostomy tube. The method has been used by French and Swedish surgeons for a long time in perforated duodenal ulcer.

Treatment of Pelvic Infections of the Female

DR. A. E. BENJAMIN, Minneapolis: Infection in the female pelvis in about 80 per cent of the cases appears to be of gonorrheal origin. These patients should be hospitalized as soon as possible (*a*) to protect society and (*b*) to institute at once a plan of treatment suitable to the patient. By judicious rest treatment, recovery is possible in early acute gonorrheal cases in which the pelvic organs are normally placed. In a few special acute gonorrheal cases, operation could perhaps be performed early to restore the pelvic organs to the normal circulatory level and position and to conserve the tubes, or in others to remove the tubes and thus avoid prolonged and expensive treatment. A greater percentage of recoveries apparently follow conservative treatment as the cases are seen late by the surgeon. Patients usually return if not operated on because of secondary infection, or they have continued ill health, especially when there is much displacement. Radical operation is indicated in most of the chronic cases. Careful and thorough surgical technic often avoids the return of these patients for more operative treatment. A resting case of doubtful diagnosis, with increasing severe symptoms, or with blood conditions indicative of spreading infection, may demand immediate operation. Streptococcic or staphylococcic infection may gradually subside under careful management. Patients with gonorrhea are usually in a class in which the surgeon could justly disregard the possibilities of sterility following an operation.

Biliary Surgery; Remote Results

DR. F. G. CONNELL, Oshkosh, Wis.: In my personal records from 1910 to 1920 I find 336 cases of biliary tract disease, in 150 of which operation was not performed, and 186 of which were treated surgically. Of the 186 surgical cases, thirty-three patients are known to have died. Four deaths were remote and unrelated; twelve were secondary (three months or more after operation); seventeen were primary. Of the seventeen primary deaths, two followed simple exploratory incisions for malignant disease of the liver; subtracting these two cases leaves 184 cases with fifteen primary deaths, or 8 per cent. It is of interest to note that of the thirty-three deaths carcinoma was a factor in fifteen instances (stomach, five; liver, five; colon, two; pancreas, two; kidney, one). In fifty-four cases the result is unknown, leaving ninety-nine cases in which we are familiar with the postoperative history. In forty of these ninety-nine cases there was a return of symptoms, but subsequent developments showed that in fifteen cases the symptoms subsided spontaneously; in fourteen, secondary operations were performed, of which seven patients were relieved, four were unrelieved and three died. Subtracting from the original forty, the twenty-two relieved spontaneously and after secondary operation leaves, in the last analysis, eighteen of the ninety-nine cases with a return of symptoms (18.1 per cent). It would seem reasonable to conclude that the most usual cause of return or continuation of symptoms after operation is to be found in the same factors that frequently cause a return or continuation of symptoms before operation, namely, disease in viscera other than the gallbladder.

Injection of Iodized Oil in the Diagnosis of Sterility

DR. W. A. COVENTRY, Duluth, Minn.: Injection of the uterus and tubes with iodized oil is of infinite value in the diagnosis of patency of the tubes and the presence of submucous tumors of the uterus. With the careful injection of iodized oil, early pregnancy may be demonstrated. This method should not be used universally but only when definite indications for differential diagnosis are present. The injection of iodized oil should be a valuable aid in the diagnosis of congenital deformity of the uterus. This method is of distinct value in locating the site of obstruction in the fallopian tubes and indicating the possibilities of correction and treatment as regards sterility. As a means of diagnosis it may prove even superior to the Rubin inflation method because it not only shows the patency of the tubes but also reveals the pathologic status, if one is present. Injection of iodized oil is of great benefit in determining the solution of problems presented when the patient says "I have had a pelvic operation, but I do not know what for or what has been removed." She returns to find out whether she can become pregnant. Iodized oil is a diagnostic aid in determining not only the patency of the tubes but also of other allied pelvic conditions.

Some Unusual Lesions of the Stomach Resembling Carcinoma

DR. VERNON C. DAVID, Chicago: There is a small group of middle-aged patients having unusual lesions of the stomach which resemble carcinoma clinically who, on exploratory laparotomy, are found to have lesions other than carcinoma. In some instances, these unexpected lesions are amenable to surgical relief. This group of patients may have palpable tumors of the stomach, or large roentgen-ray filling defects of the stomach, or both, accompanied by symptoms that might well be those of carcinoma. The importance of recognition of such a group is obvious, as is the necessity of embracing it in our indications for exploratory laparotomy. It may be emphasized that foreign bodies in the stomach, as hair balls, food balls or shellac balls; chronic granulomas, as Hodgkin's disease, leukemia or lymphosarcoma; chronic inflammatory lesions, as syphilis, which may be ulcerative or cirrhotic, and primary tuberculosis, which may be ulcerative or fibrous; tumors other than carcinoma, as sarcoma, and the benign tumors, as myoma, adenoma, papilloma, hemangioma and inflammatory fibromatosis, which may ultimately be classified as atypical fibrocarcinoma, may all be easily confused with the usual carcinoma of the stomach, and should be carefully excluded before exploratory operation is denied a patient apparently suffering with inoperable carcinoma of the stomach.

Use of Ephedrine in Spinal Anesthesia

DR. H. K. WALLACE, St. Joseph, Mo.: Spinal anesthesia is a most satisfactory and desirable anesthetic in certain cases. With the use of ephedrine to sustain blood pressure, it can be used without danger in practically all operations below the diaphragm.

(To be continued)

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Current Medical Literature

AMERICAN

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Titles marked with an asterisk (*) are abstracted below.

American Journal of Pathology, Boston

3: 583-709 (Nov.) 1927

*Pathology of Rheumatic Fever: Unusual Cardiovascular Lesions. A. M. Pappenheimer and W. C. Von Glahn, New York.—p. 583.

*Malformations of Heart. F. D. Gunn and J. M. Dieckmann, Buffalo. —p. 595.

Congenital Anomaly of Heart: Truncus Arteriosus Communis. H. M. Zimmermann, New Haven, Conn.—p. 617.

*Vegetative Endocarditis Due to Meningococcus. C. P. Rhoads, Boston. —p. 623.

*Pathology of Generalized Argyria: Fate of Silver in Human Body. A. O. Gettler, New York, C. P. Rhoads and S. Weiss, Boston. —p. 631.

*Primary Mesenchymal Hepatoma. N. C. Foot, Cincinnati.—p. 653.

Sarcosporidial Infection of Myocardium in Man. S. W. Lambert, Jr., New York.—p. 663.

Comparison in Normal, Thyroidectomized and Hypophysectomized Rats of Effects on Metabolism and Growth Resulting from Daily Injections of Small Amounts of Thyroid Extract. P. E. Smith, Palo Alto, Calif., C. F. Greenwood and G. L. Foster, Berkeley, Calif.—p. 669.

Pathologic Manifestations of Rheumatic Fever.—The more closely one studies material from cases of rheumatic disease the more does it become apparent that the lesions of the vascular system are more diverse and more widely distributed than is generally supposed. The cases reported by Pappenheimer and Von Glahn illustrate this point and add several new observations to previous descriptions of the pathologic manifestations of rheumatism. These new features of interest are an aortitis with peculiar characteristics not heretofore described and a specific type of panarteritis affecting the larger arteries (coronaries, renal, superior mesenteric and celiac axis). The absence of complicating lesions and infections, the youth of the patients (14 and 15) and the typical clinical courses add significance to the observations.

Malformations of Heart.—The essential features in one of the heart specimens described by Gunn and Dieckmann were: (1) a large aperture of communication between the two sides of the heart, involving the lower atrial and the upper ventricular septums; (2) a fibrous interatrial septum, the posterior attachment of which, together with the coronary sinus, is displaced to the right, and (3) a common atrioventricular canal bordered by five cusps—in the left ventricle, a small lateral and a large anterior, and in the right, a large anterior and small lateral and medial. The lateral corresponds to the posterior of the normal tricuspid valve. A mass of endocardial tissue, attached to the posterior margin of the interventricular septum, projected into the interventricular aperture. The second specimen presented, in addition to almost complete absence of the atrial septum, defects of the tricuspid valve, especially its medial cusp. The defect of the atrial septum is due to absence or degeneration of the septum primum, and to absence of the septum secundum. The rudimentary atrial septum is interpreted as the left valve of the sinus venosus. The defective medial cusp of the tricuspid is interpreted as being due either to failure of fusion of the right ends of the endocardial cushions or to deficient growth potentialities of the posterior cushions alone.

Vegetative Endocarditis Due to Meningococcus.—A case of vegetative and ulcerative endocarditis due to the meningococcus is reported by Rhoads and the literature reviewed. The identity of the organism is proved culturally and serologically. Lesions of the myocardium resembling those seen in rheumatic fever were obtained.

Pathologic Manifestations of Generalized Argyria.—The pathologic, histologic and chemical observations made by Gettler et al. in their case indicate that the patient was suffering from the most severe degree of generalized argyria ever reported in the literature. Chemical analysis of the organs revealed the following concentration of metallic silver in the organs: kidneys, 0.24 per cent; bone, 0.21 per cent; muscles, 0.16 per cent; heart, 0.15 per cent; liver, 0.07 per cent, and brain, 0.01 per cent. The total silver content of the organs was: muscles, 45.7 Gm.; skeleton, 24.4 Gm.; liver, 1.35 Gm.; kidneys, 0.73 Gm.; heart, 0.46 Gm., and brain, 0.15 Gm. The total estimated silver content of the body was from 90 to 100 Gm.

Primary Mesenchymal Hepatoma.—A case of multiple tumors, occurring in a boy of 4, is described by Foot. The tumors were rich in reticulum and invaded almost all the periportal tissue of the liver. Similar cells and reticulum were found in the neighboring costal bone marrow, probably metastases to that tissue, although this was not proved. It is concluded that the tumor probably had its origin in the mesodermal primordium of the liver.

American Review of Tuberculosis, Baltimore

16: 541-654 (Nov.) 1927

*Bronchomycoses Which May Simulate Pulmonary Tuberculosis. A. Castellani, New Orleans.—p. 541.

*Pneumonomycosis. L. Hamman, Baltimore.—p. 575.

*Fusospirochetal Disease of Lungs. D. T. Smith, Ray Brook, N. Y. —p. 584.

*Pulmonary Sporotrichosis. W. D. Forbus, Baltimore.—p. 599.

*Effect of Rachitic Diets on Experimental Tuberculosis: I. A. H. Grant, Columbus, Ohio, B. Suyenaga, Nagasaki City, Japan, and D. E. Stegeman, Glendale, Calif.—p. 628.

*Id.: II. A. H. Grant, Columbus, Ohio, J. A. Bowen, Cleveland, and D. E. Stegeman, Glendale, Calif.—p. 642.

Bronchomycoses.—Castellani believes that the conditions of bronchitis and broncho-alveolitis of fungal origin deserve to attract more attention than has been the case hitherto. The subject is of practical importance: these conditions are not very rare, even in temperate climates, and in some cases, if an accurate diagnosis is made in time, a cure can be obtained. He emphasizes the point that secondary bronchomycoses are quite common, and that the mere finding of a fungus in the sputum is not sufficient to establish a diagnosis of primary bronchomycosis; every possible investigation should be carried out to exclude tuberculosis.

Pneumonomycosis. — Fungi, says Hamman, frequently inhabit the respiratory passages as saprophytes, and their occurrence in sputum is not conclusive evidence that they are the cause of the disease under consideration. Fungi frequently enter the lungs as secondary invaders, complicating the preexisting disease. They are commonly associated with tuberculosis, but occur also with bronchitis, bronchiectasis, abscess or carcinoma. Fungi are less frequently the primary and independent cause of pulmonary disease. The lesions they produce are varied, and the clinical symptoms may resemble bronchitis, bronchiectasis, tuberculosis, bronchopneumonia, abscess, pleurisy, empyema, and new growth. The disease is usually chronic and, as fibrosis is extensive, the terminal stage may be the clinical picture of pulmonary cirrhosis. The disease in most instances is mistaken for tuberculosis, and can be distinguished from it only with difficulty. This difficulty is increased by the fact that the two diseases are often combined.

Fusospirochetal Disease of Lungs.—Clinical, bacteriologic, pathologic and experimental studies, according to Smith, indicate that pulmonary gangrene, most cases of pulmonary abscess, certain types of unresolved pneumonia and bloody bronchitis, putrid bronchitis and primary bronchiectasis are not separate disease entities but only different manifestations of infection with a specific group of anaerobic microorganisms. Spirochetes (*T. microdenteum, T. macrodenteum, S. vincenti, S. bronchialis*), fusiform bacilli, vibrios and cocci have been found constantly (1) in the gums of patients suffering with these infections, (2) in the washed pulmonary sputum and (3) in pulmonary tissue at necropsy. When material scraped from the alveolar border of the teeth in cases of moderately severe pyorrhea was introduced into the trachea of anesthetized mice, guinea-pigs and rabbits, a variety of pulmonary infections resulted which resembled very closely the acute and chronic manifestations of fusospirochetal disease in man. *Treponema microdenteum, T. macrodenteum,* and two types of fusiform bacilli have been isolated in pure culture from the washed pulmonary sputum.

Pulmonary Sporotrichosis.—All reported cases of pulmonary sporotrichosis have been abstracted and subjected to a critical analysis by Forbus. From this review it is apparent that pulmonary infections by sporotrichum are extremely rare, there being just two cases in the entire voluminous literature on the subject of sporotrichum infections of all varieties in which the evidence is in any way satisfactory. It is also evident that visceral lesions of any kind are almost unknown in this disease. The lesions, thought most probably to be due to infection by sporotrichum, which were found in the lung and spleen in a review of an unpublished case are described. They appear somewhat similar to those produced by the tubercle bacillus, but are by no means identical with them. Attention is called to the septicemic nature of many apparently localized sporotrichum infections and the associated lack of generalized visceral lesions in such cases commented on. It is pointed out that, because of the rarity of visceral lesions in sporotrichum infections, little attention need be paid to the probability of such infection in the differential clinical diagnosis of obscure pulmonary conditions.

Experimental Tuberculosis; Effect of Rachitic Diet.—By means of experiments, Grant et al. determined that white rats can be made so susceptible to tuberculosis, by decreasing the calcium and vitamin D of the diet sufficiently, that they develop tuberculosis in the lungs which can be diagnosed grossly and microscopically, and by guinea-pig inoculation. Rats receiving adequate diets both before and after inoculation are immune to subcutaneous inoculations of tubercle bacilli even in large doses.

Experimental Tuberculosis; Vitamin D Deficiency.—Grant et al. found that decreasing the vitamin D of the diet sufficiently decreases the resistance of white rats to tuberculosis from a high immunity to a susceptibility to subcutaneous injections of a virulent strain of bovine bacilli. Gloomy winter weather, as it influences the amount and nature of sunlight, forces young rats to obtain a larger part of their supply of vitamin D from the diet. If the vitamin D content of the diet is low, rickets is intensified and the susceptibility to tuberculosis is increased.

Archives of Internal Medicine, Chicago

40: 575-742 (Nov.) 1927

*Splanchnoperipheral Balance During Chill and Fever. W. F. Petersen and E. F. Müller, Chicago.—p. 575.
*Monocytes in Pneumonia. R. A. Hickling, New York.—p. 594.
*Action of Camphor and Strychnine on Cardiac Output: IV. C. P. Wilson, T. R. Harrison and C. Pilcher, Nashville, Tenn.—p. 605.
Pollen Allergy: II. Genesis of Skin Hypersensitiveness in Man. R. W. Lamson and H. Miller, Los Angeles.—p. 618.
Exophthalmic Goiter and Involuntary Nervous System: XVI. Influence of Subtotal Thyroidectomy With and Without Iodine on Course. L. Kessel and H. T. Hyman, New York.—p. 623.
Water Metabolism: Effect of Varying Degrees of Hydration on Sugar Metabolism. E. Andrews and K. W. Schlegel, Chicago.—p. 637.
*Studies on Cells Withdrawn from Lymph Nodes: II. C. E. Forkner, Boston.—p. 647.
*Insulin Reactions. L. Foshay, Cleveland.—p. 661.
Problem of Iron Reserve. C. S. Williamson and H. N. Ets, Chicago. —p. 668.
*Diabetes Mellitus: Case Refractory to Insulin. B. Y. Glassberg, M. Somogyi and A. E. Taussig, St. Louis.—p. 676.
Vital Capacity of Chinese Students. C. H. McCloy, New York.—p. 686.
*Oral Administration of Epinephrine. W. C. Menninger, Topeka, Kan. —p. 701.
Pericardial Pain. J. A. Capps, Chicago.—p. 715.
Intratracheal Injection of Iodized Oil. B. M. Fried, Boston, and L. R. Whitaker, Rochester, N. Y.—p. 726.

Splanchnoperipheral Balance During Chill and Fever.—The bacterial chill and fever, Petersen and Müller assert, are the result of the fixation of the splanchnoperipheral autonomic balance. The entrance of bacteria into the blood stream is followed by their fixation by the reticulo-endothelial elements of the splanchnic area. This, depending on the toxicity of the organisms, is followed by a marked stimulation of these cells and of the organs in which they occur—the liver, spleen, bone marrow and gastro-intestinal system. This stimulation involves a parasympathetic status of the organ group, and with it a sympathetic orientation of the peripheral organs. In this peripheral group, the muscles are oriented in the same direction as the skin and vascular tissues. The intense sympathetic orientation, which arrests the activity and restricts the blood supply, is an adaptation to the fundamental alterations in the condition of existence of the whole organism. The muscle tremor itself is the expression of the intense sympathetic orientation, augmented to such a degree that it cannot be overcome by will, as is still possible in the chill accompanying the external application of cold. The tremor itself, presumably a clonic effect in muscle with increased tonus, may be associated with the local effect of metabolic products accumulated when vascular constriction takes place, rather than considered a phenomenon due to the mere deprivation of oxygen. The tremor is not associated with increased production of heat and is to be regarded as a phenomenon analogous to that studied in smooth muscle during so-called muscle blockade.

Monocytes in Pneumonia.—A study is presented by Hickling of the leukocyte variations in the circulating blood in thirty-two cases of lobar pneumonia. A monocytosis developed in the circulating blood of all patients except those who died early in the disease. Evidence is given which shows that this monocytosis is closely associated with resolution of the affected lung.

Action of Camphor and Strychnine on Cardiac Output.—The effects of camphor and of strychnine on the cardiac output of normal, unnarcotized dogs were studied by Wilson et al. by the Fick method. The evidence obtained suggests: (1) that camphor has no value in the treatment of patients with circulatory disorders, and (2) that the value of strychnine in such conditions is unproved.

Nature of Cells in Lymph Nodes.—The cases studied by Forkner include different types of lymphoblastoma, tuberculosis, benign hyperplasia and carcinoma. Control examinations of normal nodes were also made. These conditions each gave a distinctive cytologic picture. Puncture of lymph nodes is said to provide a way to follow the spontaneous morphologic changes in disease and those induced by treatment. Likewise, prognosis can be formulated from the character of the cells obtained by the procedure.

Insulin Reactions.—A method is presented by Foshay which makes it possible to anticipate the occurrence of many insulin reactions, hours before the first symptom appears. Many impending reactions may be recognized early and completely prevented by proper prophylactic treatment. This method is especially valuable for the study of patients who are in coma, for at that time the symptoms are lacking and the physical signs may be obscured.

Diabetes Mellitus Refractory to Insulin.—Glassberg et al. believe that it is justifiable to assume the existence of at least two varieties of diabetes mellitus: the one due to pancreatic disease and responding to insulin; the other due to a deficiency in the production of a muscle enzyme and relatively refractory to insulin.

Oral Administration of Epinephrine.—Menninger's observations show that the oral administration of epinephrine is inconstant and unreliable, and for this reason it cannot be satisfactorily used for therapeutic purposes or for any form of sensitization tests. The oral administration of the drug in man produces effects which have not as yet been explained in the light of animal experimentation. Despite the generally expressed opinion to the contrary, epinephrine is absorbed in the gastro-intestinal tract (other than the mouth and throat) in certain cases, as evidenced by changes in blood pressure, increased tremor, sweating, abdominal distress and other systemic manifestations of the drug.

Archives of Otolaryngology, Chicago

6: 405-502 (Nov.) 1927

*Modus Operandi of Vertigo. L. M. Hubby, New York.—p. 405.
*Epiglottidean Tuberculosis. F. R. Spencer, Boulder, Colo.—p. 413.
Acute Otitic Temporosphenoidal Abscess. E. R. Roberts, Bridgeport, Conn.—p. 420.
Intranasal Surgical Treatment of Chronic Maxillary Sinusitis. B. E. Hempstead, Rochester, Minn.—p. 426.
Surgical Correction of Cleft Lip and Cleft Palate. G. B. Jobson, Franklin, Pa.—p. 434.
Instrument for Placing Sutures in Tonsillar Fossae and in Other Deep Cavities. B. H. Shuster, Philadelphia.—p. 446.
*Use of Salt Pork to Control Hemorrhage. L. M. Hurd, New York. —p. 447.
Advancement in Knowledge of Allergy as Related to Otolaryngology. W. W. Duke, Kansas City, Mo.—p. 450.

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Mechanism of Vertigo.—According to Hubby, the basic part of true vertigo occurs in the series of vestibular neurons connected with the production of reaction movements of the muscles. The afferent impulses initiating these movements start in the labyrinth, mainly from the semicircular canals. These afferent impulses are caused by the continuous series of intracranial pressure waves transmitted directly to the vestibular nerve endings in the labyrinth through the ductus endolymphaticus. Sufficient alteration of the impulses from one side produces a tendency to reaction movements of the muscles and vertigo. This alteration may occur in the generation of impulses in one labyrinth as compared to that in the other, or in a change in the transmission of the impulses through the vestibular chain of neurons of one side to the brain centers.

Tuberculosis of Epiglottis.—The case reported by Spencer shows the advantages of rest in bed, fresh air, sunshine, good food, rest of the voice and heliotherapy by means of the solar laryngoscope.

Control of Hemorrhage by Salt Pork.—In nasal hemorrhage caused by a malignant condition, systemic diseases and rupture of vessels in the Kisselbach area, Hurd says a piece of salt pork, 1½ inches (4 cm.) long and as large as the particular anterior naris will admit, is pushed into the nose until the outer end is well within the nasal vestibule. Usually he does not use any outside dressing to hold the pork in place, as it will slip out in a few hours and there is no more bleeding. However, he has had it remain in the nose as long as three days and be as clean when removed as it was when introduced. For secondary postoperative tonsillar hemorrhage, he places a small piece of salt pork in a tonsil sponge forceps and holds it gently against the bleeding area with just sufficient pressure to control bleeding. The time necessary to hold it in place is less than the clotting time of the patient. In severe tonsillar hemorhage, he always ties the bleeding points and does not trust to any kind of clot-forming substance. Larding pork is cheap, common and easily obtained. It keeps well and is handy to use. It is superior to the usual nasal pack in that it is easier to introduce and it is more comfortable for the patient, whose only complaint is that the salt causes smarting for a few minutes. Pork promptly stops the bleeding, and seems to have the property of preventing recurrence.

Boston Medical and Surgical Journal

197: 1017-1074 (Dec. 1) 1927

Mistakes Made in Diagnosis and Treatment of Pulmonary Tuberculosis. H. F. Stoll, Hartford, Conn.—p. 1017.
Newer Functions of State Schools for Mentally Deficient. N. A. Dayton, Boston.—p. 1024.
Reflex Anuria Caused by Stricture of Urethra. S. G. Pavlo, Boston.—p. 1026.

197: 1075-1116 (Dec. 8) 1927

Use of Iodine in Thyroid Disease. C. G. Heyd, New York.—p. 1075.
Colloid Carcinoma of Bladder. E. L. Young, Jr., Boston.—p. 1079.
*Value in Psychiatry of Sense of Humor. D. Gregg, Wellesley, Mass.—p. 1082.
*Treatment of Necrosis of Terminal Phalanx of Finger. C. Bearse, Boston.—p. 1903.

Value in Psychiatry of Sense of Humor.—Gregg concludes that a study of an individual's sense of humor and of variations in this quality is of value, first, as a delicate index of deterioration when it decreases; secondly, as an aid in the differential diagnosis between schizophrenia and cyclothymia; thirdly, as a delicate index of improvement when it reappears and increases in a given case.

Treatment of Necrosis of Phalanx of Finger.—In an attempt to preserve the tip of the finger and nail in these cases, Bearse makes an inverted U-shaped incision around the end of the finger; the flaps are separated and all of the necrotic bone is removed. Gauze packing is placed between the flaps to facilitate drainage. This packing is changed every two days until the drainage becomes scanty, when it is omitted. The flaps are then placed in apposition, without suturing, and kept so until the finger is healed.

Journal of Immunology, Baltimore

14: 249-319 (Nov.) 1927

*Transmission of Protein Hypersensitiveness from Mother to Offspring: I. Placental Permeability. B. Ratner, H. C. Jackson and H. L. Gruehl, New York.—p. 249.
*Id.: II. Rôle of Colostrum. B. Ratner, H. C. Jackson and H. L. Gruehl, New York.—p. 267.
*Id.: III. Rôle of Milk. B. Ratner, H. C. Jackson and H. L. Gruehl, New York.—p. 275.
Id.: IV. Passive Sensitization in Utero. B. Ratner, H. C. Jackson and H. L. Gruehl, New York.—p. 291.
Id.: V. Active Sensitization in Utero. B. Ratner, H. C. Jackson and H. L. Gruehl, New York.—p. 303.

Placental Permeability.—According to Ratner et al., the passage of heterologous substances through the placenta is a physiologic function and not a pathologic one. The placenta is permeable to antitoxins, precipitins, bacteriolysins, heterologous proteins and protein sensitizing antibodies in man, guinea-pigs and rabbits.

Rôle of Colostrum in Placental Permeability.—Ratner et al. assert that colostrum plays a negligible rôle in the transmission of immunity from the mother to her offspring in the human species.

Rôle of Milk in Placental Permeability.—A critical review of the literature made by Ratner et al. discloses that milk plays a negligible rôle in the transfer of antibodies to the suckling, with the exception of the mouse and ruminants.

Kentucky Medical Journal, Bowling, Green

25: 549-602 (Oct.) 1927

Bilateral Acute Mastoiditis in Six Months Old Infant: Hemorrhage from Antrum of Highmore. A. L. Bass, Louisville.—p. 552.
Cerebellar Abscess of Otitic Origin. S. B. Marks, Lexington.—p. 556.
Cerebral Arteriosclerosis. C. W. Dowden, Louisville.—p. 560.
What Glasses Shall We Prescribe After Examination? R. H. Cowley, Berea.—p. 566.
Endoscopy: Cases. G. C. Hall, Louisville.—p. 571.
Acute Pancreatitis: Three Cases. L. W. Frank, Louisville.—p. 576.
Atresia of Auditory Canal: Case. W. Dean, Louisville.—p. 580.
Dysmenorrhea. L. Graves, Scottsville.—p. 581.
Some of More Common Causes of Loss of Vision in Light of Their Prevention. T. H. Singleton, Bowling Green.—p. 582.
Angina Pectoris. C. Thompson, Louisville.—p. 585.
Changing Concepts Concerning Oral Sepsis. E. C. Rosenow, Rochester, Minn.—p. 592.
Focal Infection. H. K. Orsborn, Owensboro.—p. 597.

Maine Medical Association Journal, Portland

18: 201-219 (Nov.) 1927

Classification of Nephritis. G. G. Duncan, Philadelphia.—p. 201.
Physical Therapy in Diseases of Skin. C. E. Cook, Jr., Calais.—p. 207.

Medical Journal and Record, New York

126: 649-704 (Dec. 7) 1927

Physicians and Intelligence Tests. I. S. Wile, New York.—p. 649.
*Intravenous Glucose Medication. W. E. Robertson, A. E. Oliensis and D. Stein, Philadelphia.—p. 654.
Functional Rest of Ear. G. B. McAuliffe, New York.—p. 656.
Cancer: XXV. Lungs and Lymph System as Reservoirs of Cancer Cells. W. Meyer, New York.—p. 657.
Cholecystitis. B. B. V. Lyon, Philadelphia.—p. 660.
Alcohol. A. D. Bush, Atlanta, Ga.—p. 661.
*Qualitative and Quantitative Test for Sugar in Urine. A. G. Sheftel, New York.—p. 663.
Gumma of Mediastinum. H. Hallarman, New York.—p. 664.
Removal of Tonsils. H. Yandell, Phoenix, Ariz.—p. 666.

Intravenous Dextrose Medication.—Since using a concentrated solution of dextrose, Robertson, Oliensis and Stein have not had any reactions whatever in fourteen consecutive intravenous injections given. A severely impaired cardiovascular system is no contraindication to its use. Untoward reactions following these injections are due to the rapid rate of injection, the large volume of fluid, the distilled water, and improper temperature of the solution. The solution is prepared as follows: dextrose, 108 Gm., is mixed with sterile physiologic sodium chloride solution, 180 cc. in an Erlenmeyer flask and kept in a hot water bath at the boiling point for twenty minutes. The solution is then cooled to body temperature and immediately injected by gravity through the usual hypodermic needle. The solution must always be freshly prepared as needed, and if any remains unused it should be discarded. The temperature of the solution can be kept constant simply by placing a hot water bag around

the container. The time consumed in injecting the 180 cc. of the dextrose solution must not be less than thirty minutes, and in some cases lengthening of the injection to forty-five minutes is preferable.

Qualitative and Quantitative Test for Sugar in Urine.—The method described by Sheftel employs a colorimetric scale. He uses a special dropper with two divisions, and a chart of different shades of green ranging from blue to yellow, each corresponding to a definite percentage of sugar, and two reagents. Reagent 1 consists of: copper sulphate, 25 Gm.; sodium citrate, 250 Gm.; sodium carbonate (anhydrous), 150 Gm.; acacia, 10 per cent solution, 4 cc.; distilled water to make 1,000 cc. Reagent 2 consists of: creatinine, 0.4 per cent solution, 10 cc.; acacia, 10 per cent solution, 10 cc. To 5 cc. of reagent 1 in a test tube, 0.5 cc. of urine is added (division 1 on dropper). The solution is heated in boiling water for five minutes; it is then cooled and well shaken. If there is no cloudiness and no change in the original blue color, there is no sugar, but if the solution gets opaque and changes color, sugar is present. To determine the amount of sugar, the test tube is compared with the color scale of chart 1 and the percentage of sugar is read on chart 1, which ranges from 0.1 per cent to 1.75 per cent. If the solution takes on a reddish yellow or red color, this would indicate that a higher amount of sugar is present. In this case another 5 cc. of reagent 1 is added to 0.012 cc. (division 2 on dropper) of urine. But as there is not enough creatinine and colloidal substance in such a small amount of urine to prevent the formation of red cuprous oxide, a red precipitate may form, and therefore the author also adds 0.012 cc. of reagent 2, which makes the cuprous oxide yellow. The mixture is heated in boiling water for five minutes, allowed to cool, shaken well and compared with the color scale of chart 2; the percentage is read on chart 2, which ranges from 2 per cent to 8 per cent.

New York State Journal of Medicine, New York

27: 1293-1348 (Dec. 1) 1927

Chemotherapy in Diseases of Skin. P. E. Bechet, New York.—p. 1293.
Lens Antigen Treatment of Cataract. Z. H. Ellis, New York.—p. 1296.
Goiter. W. T. Diver, Troy, N. Y.—p. 1301.
End-Results of Procidentia Operations. F. A. Pemberton, Boston.—p. 1306.
Organized Medicine on Long Island: Kings County. T. S. Welton, Brooklyn.—p. 1309.
Id.: Queens County. F. G. Riley, Jamaica.—p. 1309.
Id.: Nassau County. L. A. Van Kleeck, Manhasset.—p. 1310.
Id.: Suffolk County. W. H. Ross, Brentwood.—p. 1311.
Relation of Medical Society of State of New York to Physicians of Long Island. J. E. Sadlier, Poughkeepsie.—p. 1312.

Philippine Islands M. Association Journal, Manila

7: 361-406 (Oct.) 1927

*Progress of Treatment in Culion Leper Colony to March, 1927. B. de Vera, Culion.—p. 361.
Prognosis and Treatment of Gas Bacillus Infections. F. Esquivel, Manila.—p. 367.
Study of Menstruation in Young Girls. M. Tolentino, Manila.—p. 372.
Objects and Activities of Industrial Hygiene Section of Philippine Health Service. R. Villafranca and M. C. Icasiano, Manila.—p. 378.
Inoculation and Hospitalization in Control of Cholera Epidemic. J. S. Fernando, Malolos.—p. 385.

Results of Treatment of Leprosy at Culion.—The results of the treatment carried out at the Culion Leper Colony up to March 31, 1926, are briefly reviewed by de Vera. Of 3,133 patients receiving antileprosy treatment, 77 per cent were improved (including negative, 8.4 per cent), 11 per cent remained stationary, and 11.5 per cent became worse, as compared with their condition at the start of the treatment. One hundred and six patients became bacteriologically negative. The importance of continuing the treatment for those reacting negatively is emphasized. In the gross results by drugs, creosoted iodized chaulmoogra ethyl esters showed the highest percentage improved which, however, cannot be taken as evidence of the superiority of this preparation over the others, because entirely different factors were chiefly, if not wholly, responsible for the apparent superiority. A more accurate comparison based on continued improvement during the last six months showed that iodized chaulmoogra ethyl esters actually gave a higher rate.

Public Health Journal, Toronto

18: 501-550 (Nov.) 1927

Food and Physic. J. W. S. McCullough, Toronto.—p. 501.
Health Education. A. S. Lamb, Montreal.—p. 509.
Medical Care of Indigents. W. E. George, Indianapolis.—p. 520.
Recent Developments in Field of Preventive Medicine and Their Nursing Implications. E. Hurley, Montreal.—p. 527.
Chlorination of Water Supplies. J. Van Benschoten, Toronto.—p. 537.

Public Health Reports, Washington, D. C.

42: 2893-2944 (Nov. 25) 1927

University in Relation to Public Health. J. W. Kerr.—p. 2893.

42: 2945-3003 (Dec. 2) 1927

Expectation of Life in England and in United States. R. H. Britten, Washington, D. C.—p. 2945.

South Carolina Medical Association, Greenville

23: 507-534 (Nov.) 1927

Rôle of Early Laparotomy in Contusions of Abdomen. J. H. Taylor, Columbia.—p. 509.
Results of Examination of 203 South Carolina School Teachers. C. W. Evatt, Greenville.—p. 517.

Southwestern Medicine, Phoenix, Ariz.

11: 479-522 (Nov.) 1927

Diagnosis of Certain Difficult Cases of Tuberculosis. F. M. Pottenger, Monrovia, Calif.—p. 479.
Localization of Foreign Bodies in or About Eye. H. P. Mills and W. W. Watkins, Phoenix, Ariz.—p. 488.
Copper Foreign Bodies in Eye: Thirty-Seven Cases. W. A. Schwartz, Phoenix, Ariz.—p. 504.

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Surgery, Gynecology and Obstetrics, Chicago

45: 721-868 (Dec.) 1927

*Parasternal Invasion of Thorax in Breast Cancer: Suppression by Use of Radium as Operative Precaution. W. S. Handley, London.—p. 721.
*Adenofibroma and Fibro-Adenoma of Female Breast. J. McFarland, Philadelphia.—p. 729.
*Chronic Meningeal (Posttraumatic) Headache: Specific Treatment by Lumbar Air Insufflation: Encephalography. W. Penfield, New York.—p. 747.
Malignant Intracranial Endothelioma. W. M. Craig, Rochester, Minn.—p. 760.
*Prevention of Peritoneal Adhesions and Encapsulation. J. R. Buchbinder, Chicago.—p. 769.
*Fatal Operative Wound Infection by an Anaerobe of Gas Gangrene Group. F. L. Meleney, F. B. Humphreys and L. Carp, New York.—p. 775.
*Abdominal Symptoms of Heart Disease: Rôle of Auricular Fibrillation. A. M. Wedd, Clifton Springs, N. Y.—p. 790.
Gallbladder—Stomach Anastomosis. J. A. Weinberg, S. P. Wallin and M. W. Binger, Omaha.—p. 795.
Ovarian Pregnancy: Case. I. F. Stein and M. L. Leventhal, Chicago.—p. 798.
Primary Abdominal Pregnancy: Case. J. P. Maxwell, N. J. Eastman and H. Smetana, Peking.—p. 802.
Barton Obstetric Forceps. C. Bachman, Philadelphia.—p. 805.
Operative Correction of Claw-Foot. H. Spitzy, Vienna.—p. 813.
Completed Aseptic Technic for Implantation of Ureter into Large Bowel. R. C. Coffey, Portland, Ore.—p. 816.
Treatment of Bladder Tumors by Chemocoagulation. L. S. Drexler and W. Ginsberg, New York.—p. 820.
New Method of Covering Denuded Areas with Surrounding Skin. E. D. Highsmith, Atlanta, Ga.—p. 823.
*Reconstruction of Thumb After Total Loss. G. W. Pierce, San Francisco.—p. 825.
Roentgen-Ray Pelvimetry. H. Thoms, New Haven, Conn.—p. 827.
*Tumor of Carotid Body. E. F. Traut, Chicago.—p. 829.
Preoperative Management of Patients with Hyperthyroidism. A. T. Bunts, Cleveland.—p. 832.
Problems in Placenta Praevia. F. C. Irving, Boston.—p. 834.

Prophylactic Use of Radium in Breast Operations.—Handley endorses the value of the prophylactic use of radium in breast operations. In the absence of evidence that any risk attends the procedure, it is his opinion that the precaution should not in the future be omitted. As cases are seen earlier, prophylactic radium will become more and more valuable. Handley is convinced that its use definitely extends the possibility of cure to cases in which it was formerly excluded; namely, to cases in which the earliest stage of invasion of the chest is already present when they are first seen. In order to find the reason for the increased gravity of prognosis associated with enlargement of the axillary glands, Handley says that one must turn to the parasternal glands of the internal mammary chain. If the axillary glands are infected, then probably so are the parasternal glands. The clearance of the axilla is easy and locally effective, but

results have been marred by a failure to recognize and deal with the more subtle and clinically unrecognizable process of parasternal invasion.

Classifying Adenofibromas of Breast.—Two hundred and eighty-nine cases, supposed to be benign fibro-epithelial tumors of the female breast, were studied by McFarland, clinically and pathologically, for the purpose of harmonizing and simplifying the nomenclature. One hundred and five of them, described under no less than thirty-three different names, were found to be periductal fibromas. One hundred and forty-seven, described under much the same names, did not give any histologic indication of being tumors, or of being in any way related to them, but were simply mammary gland tissue, either normal, or in some condition of involution. In all but thirty-seven cases there was no difficulty.

Chronic Meningeal Headache.—Seven patients with post-traumatic headache and dizziness were relieved of headaches and vertigo (except one) completely by lumbar air insufflation. The amount of air injected by Penfield varied from 42 to 95 cc. The immediate reactionary headache lasted from three or four up to nine days after insufflation.

Prevention of Peritoneal Adhesions.—Buchbinder's studies so far demonstrate that in animals, hypertonic dextrose solution will prevent fibrin formation in the presence of a sterile peritonitis of moderate grade. By this means, the patency of a drain within the peritoneum can be maintained for several days. In a similar manner, adhesions between inflamed loops of bowel can be prevented. The method opens up possibilities in the prolonged drainage of the peritoneum in cases of diffuse peritonitis. It is devoid of danger if dehydration is prevented.

Fatal Operative Wound Infection from Catgut.—A pathogenic anaerobic bacillus of the gas gangrene group which apparently has not been heretofore described has been recovered by Meleney et al. from the lesion in a fatal human operative wound infection in which no other pathogenic organisms were found. The clinical syndrome was characterized by a brawny, red, edematous swelling of the abdominal wall around the wound, severe pain in the lesion, elevation of temperature, leukocytosis, feeble and rapid pulse, nausea, profuse perspiration and toward the end somnolence, irritability when aroused, and finally profound prostration and circulatory failure. The culture of the organism from the human lesion is highly pathogenic for the eight different species of laboratory animals which were tested. It has maintained its pathogenicity for these animals over a period of two years with frequent transfers on artificial mediums. It produces an extensive edematous slightly hemorrhagic lesion around the site of injection, somewhat resembling the lesions caused by *Clostridium novyi (Bacillus edematiens)* and *Clostridium edematis-maligni (Vibrion septique)*. The evidence seems to point toward chromic catgut, not properly sterilized, as the source of the organisms producing this series of fatal gas gangrene infections.

Abdominal Symptoms of Heart Disease.—Wedd points out that because of predominating abdominal symptoms, patients suffering from primary cardiovascular disease frequently first seek relief from surgeons. These abdominal symptoms comprise two groups. In one, the origin of the symptoms is purely reflex, as the abdominal pain, nausea and vomiting seem in disease of the coronary arteries or acute inflammations of the heart. In the other, there are secondary changes in the abdominal viscera which are responsible for the symptoms. In this group, symptoms dependent on acute or chronic passive congestion of the liver and portal stasis are common. They occur frequently as a result of auricular fibrillation, and the impairment of the circulation dependent on the arrhythmia itself offers a ready explanation. Abdominal symptoms resulting from infarction of the spleen and perisplenitis occurring in subacute bacterial endocarditis have been observed, and three cases in which laparotomy was performed have been recorded. Patients suffering from cardiovascular disease may develop any known abdominal disease but because of the frequency and variability of abdominal symptoms in purely cardiac cases, the burden of proof is on the establishment of an independent pathologic process in the abdomen.

Reconstruction of Thumb.—Pierce's patient lost the thumb of the right hand by crushing it in a press. There was complete severance through the thenar eminence just distal to the carpometacarpal joint. Within three hours, the patient was hospitalized, and a complete débridement of the wound was done under gas anesthesia. The torn adductors of the thumb were sutured around and over the stump of the first metacarpal, but, aside from this, the wound was not closed. On the fourth day, the raw area was covered with Thiersch graft in a single piece. The entire graft was successful. Two weeks after the injury a tubed pedicle of the Gillies type was made on the right side of the abdomen. Six weeks after the injury, the lower end of the tubed pedicle was severed from the abdomen, the skin graft was dissected from the thenar eminence and the end of the pedicle was sutured to the defect. Healing was uneventful. Three weeks after this last operation, or nine weeks after injury, the pedicle was severed from the abdomen and the free end closed. Seven months after injury and five months after completion of the grafting of the pedicle to the hand, a bone graft 8 cm. long was taken from the crest of the right tibia. The base of the tubed pedicle was opened on the radial side by a T incision. The stump of the metacarpal was uncovered and the medullary cavity drilled out, the drill hole extending well into the base of the metacarpal. The end of the graft was then shaped with a rongeur to fit the hole. Next, the body of the tubed pedicle was tunneled with a Mayo hemostat. This permitted the bone graft to be easily slipped into the pedicle and then firmly forced into the prepared metacarpal base. The entire hand was immobilized in a plaster-of-paris splint, where it remained for six weeks. When the splint was removed, bony union of the graft to the metacarpal was excellent. This reconstructed member is practically equivalent to a normal thumb amputated at the interphalangeal joint.

Tumor of Carotid Body.—Two new cases of carotid gland tumor are reported by Traut. The histologic picture was the same in the two. Both patients had an alveolar structure. In one patient, the carotid arteries and the vagus nerve were sacrificed. Both patients developed hemiplegia, and both patients died of pneumonia.

Texas State Journal of Medicine, Fort Worth

23: 501-562 (Dec.) 1927

Sunlight and Artificial Light Therapy in Tuberculosis. O. Egbert, El Paso.—p. 510.
Treatment of Edema in Cardiac, Renal and Hepatic Diseases. C. W. Barrier, Fort Worth.—p. 513.
Use of Novasurol in Treatment of Cardiac Edema. J. Kopecky, Galveston.—p. 518.
Radiologic Diagnosis of Tuberculosis of Bones and Joints. R. G. Giles, Temple.—p. 521.
Bone and Joint Tuberculosis. W. B. Carrell and S. Driver, Dallas.—p. 525.
Oral Use of Sodiumtetraiodophenolphthalein in Cholecystography. W. J. Marquis, Houston.—p. 530.
Advances of Radiology as Science. E. D. Crutchfield, Galveston.—p. 533.
Unilateral Exophthalmos. J. G. McLaurin, Dallas.—p. 534.
Interpretation of Tenth Annual Ophthalmic Report of Egypt. J. Mullen, Houston.—p. 539.
Lipoma of Orbit: Case. S. A. Schuster and F. P. Schuster, El Paso.—p. 541.
School Sanitation in Rural Schools. R. A. Wilson, El Paso.—p. 542.

United States Vet. Bureau M. Bull., Washington, D. C.

3: 1193-1318 (Dec.) 1927

Schizoid Mechanisms with Manic-Like Symptoms. C. L. Carlisle et al.—p. 1193.
Chronic Urethritis. V. Cookerly.—p. 1209.
Diabetes and General Practitioner. G. E. Runnerstrom.—p. 1218.
Value of Autopsies in Settlement of Claims. C. R. Miller.—p. 1222.
*Importance of Early Diagnosis in Treatment of Tuberculosis of Spine. R. W. Smith.—p. 1226.
Classification of Admissions and Discharges of Patients. R. L. Cook,—p. 1231.
Occupational Therapy. G. A. Rowland.—p. 1234.
*Surface Temperature from Neurologic Point of View. H. Powers.—p. 1239.
Oral Prophylaxis in Relation to Medicine, Surgery and Public Health. C. E. Simon.—p. 1243.

Diagnosis of Tuberculosis of the Spine.—Smith is of the opinion that many cases of tuberculosis of the spine are unrecognized until the disease is far advanced and extensive destruction and deformity is present. The mere fact that a

roentgen-ray examination is negative does not exclude the diagnosis of tuberculosis of the spine, although sooner or later it will confirm it. Early fixation will prevent the extensive deformity which follows in an untreated case.

Surface Temperature from Neurologic Point of View.—It would appear from Powers' observations that the surface thermometer is somewhat useful in differentiating functional from organic conditions, in differentiating neurologic from nonneurologic conditions, and in the detection of malingering; but because of the crudeness of the method used no further conclusion is drawn, except that the localized variations of skin temperature produced by lesions of the nervous system should be studied by more refined methods in order to discover what, if any, diagnostic significance they may have.

Wisconsin Medical Journal, Madison

26: 601-640 (Dec.) 1927

United Front for Child Health. S. J. Crumbine, New York.—p. 601.
Health Officer, Medical Profession and Laity. W. S. Leathers, Nashville, Tenn.—p. 607.
Rectal Examinations: Helpful Points. W. A. Fansler, Minneapolis.—p. 614.
Pernicious Anemia. C. E. Constantine, Racine.—p. 616.
Diagnostic Problems. L. M. Warfield, Milwaukee.—p. 617.
Primary Malarial Infection. A. G. Schutte and B. Hallman, Milwaukee.—p. 618.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

2: 907-966 (Nov. 19) 1927

Prostatic Enlargement. C. Wallace.—p. 907.
*Therapeutic Uses of Oxygen: I. H. W. Davies.—p. 911.
*Indications for Oxygen Therapy: II. W. T. Ritchie.—p. 915.
*Relation of Sex of Offspring to Time of Coitus During Estrous Cycle. F. A. E. Crew.—p. 917.
Uterine Fibroids After Menopause. W. F. Shaw.—p. 919.
*Technic of Lower Segment Cesarean Operation. B. Solomons.—p. 921.
Unification of Local Health Services: I. Local Health Authority. A. S. M. Macgregor.—p. 924.
Id.: II. Factory Medical Service. E. L. Collis.—p. 926.
Growth in Its Pathologic Relations. A. Leitch.—p. 929.
Lacrimal Obstruction: Nasal Origin and Intranasal Treatment. F. H. Diggle.—p. 933.
*Intratracheal Injection of Lipiodol: Death. W. J. O'Donovan.—p. 935.
Palpable Gallstones in Undistended Gallbladder. F. H. K. Knight.—p. 935.
Hereditary Deformity of Fingers. E. R. W. Gilmore.—p. 935.
Double Tubal Pregnancy with Early Rupture. W. R. Dalzell.—p. 936.

Therapeutic Uses of Oxygen.—In the treatment of acute respiratory diseases, Davies says, the value of oxygen administration is to tide the patient over the period of functional deficiency and so prevent injury to the central nervous system, myocardium and other tissues. In this way it may be compared with the restriction of carbohydrate intake in diabetes and of nitrogenous intake in certain types of acute nephritis. Similarly, in the treatment of the respiratory embarrassment of congestive cardiac failure, the prevention or relief of anoxic anoxemia will prevent further myocardial injury, and tide the patient over the critical period until the measures directed toward circulatory improvement have their effect.

Indications for Oxygen Therapy.—Ritchie is seemingly not greatly impressed with the value of oxygen therapy. He says that he is an advocate of oxygen therapy in pneumonia, but has never observed that oxygen may be helpful in acute pneumonia. Every pneumonic patient is dyspneic, but it does not follow that he needs oxygen. In the treatment of acute pneumonia oxygen is not his first line of defense, nor his second or even third line. Nevertheless, oxygen therapy may help to some extent in the fight against pneumonia. Many patients make an uninterrupted recovery, having never needed oxygen, digitalis, stimulants or hypnotics. There is one indication for the administration of oxygen in pneumonia—an indication which should never be neglected—and that is cyanosis. At the extremes of life, in the destitute, the intemperate and the obese, and especially in profoundly toxic cases, oxygen therapy is usually powerless to avert a fatal issue.

Relation of Sex of Offspring to Time of Coitus.—In an experiment designed to examine the sex ratio among individuals resulting from coitus during the first three hours and during the last three hours of estrus, respectively, in the rat, no difference was noted by Crew between these two groups.

Lower Segment Cesarean Operation.—In view of the fact that proof has been brought forward that the longer labor lasts the higher will be the bacterial content of the uterus, the lower segment operation is Solomons' choice when section is indicated for patients in labor. It is indicated for placenta praevia in selected cases. The lower segment is preferred to the upper, because a scar covered by peritoneum is less likely to lead to infection in the general peritoneal cavity. The lower segment operation allows a trial of labor. The incision in the uterus should be longitudinal or elliptic, depending on the position of the head. The placenta should be delivered through the uterine incision in all cases. Suture of the uterine incision by two layers of continuous catgut sterilized by the alcohol-iodine method has been attended by immediate postoperative success; the remote results have yet to be ascertained. Drainage of the abdomen for forty-eight hours should be performed in all suspicious cases.

Death Following Intratracheal Injection of Iodized Oil.—O'Donovan's patient began to go downhill very definitely after the intratracheal injection of iodized oil. He developed an eruption which was one of the recognized types of rash that may follow the absorption of iodides. The patient died from bronchitis and heart failure ten days after the injection of iodized oil.

Glasgow Medical Journal

107: 249-320 (Nov.) 1927

*Acute Endocarditis. J. Cowan.—p. 249.
*Id.: In Pregnancy and Puerperium: Notes on Eleven Autopsies. J. N. Cruickshank.—p. 279.
Injuries of Urinary Bladder. D. Lamont.—p. 294.

Acute Endocarditis.—Two hundred and seven cases of acute endocarditis are analyzed by Cowan. Four divisions may be recognized: terminal infections; infections consequent on acute disease elsewhere; the rheumatic group, and the nervous group. Only half the cases (104) were classed as "cardiac"; in the remainder the clinical symptoms indicated other than cardiac diseases. There were only twenty-two patients with petechiae, and eighty-nine patients in whom the occurrence of embolism was demonstrated post mortem. Only eleven of these involved the brain and seven the heart; thirty occurred in the lung, eighteen in the kidneys and fourteen in the spleen.

Acute Endocarditis in Pregnancy.—In a consecutive series of 160 postmortem examinations on women who had died during pregnancy or in the puerperium, macroscopic cardiac lesions of one kind or another were found by Cruickshank in thirty-three instances. There were eleven cases of acute endocarditis, of which five were of the ulcerative and six were of the nonulcerative type. In two cases the acute endocarditis was simply the terminal event in some other illness, in four it was secondary to infection elsewhere; in two the endocarditis was of the rheumatic type, and in two it developed at the end of a period of cardiac failure due to a previous attack of endocarditis. Puerperal sepsis appeared to be the direct cause of the acute endocarditis in only three cases.

Indian Journal of Medical Research, Calcutta

15: 277-552 (Oct.) 1927

*Malaria in Andamans: Enlarged Spleen in Adults. G. Covell and J. D. Baily.—p. 309.
*Bactericidal Action of Some Organic Compounds of Mercury on B. Pestis. J. F. Caius, S. A. Kamat and B. P. B. Naidu.—p. 337.
Pharmacologic Action of Quinanune. R. N. Chopra and J. C. David.—p. 343.
*Porokeratosis. H. W. Acton.—p. 349.
*Acquired Angiomas or Sarcoids. H. W. Acton.—p. 355.
*Tropical Cirrhosis of Liver: Fragility of Red Blood Cells. T. A. Hughes and D. L. Shrivastava.—p. 427.
*Carbohydrate Tolerance in Muscular Dystrophy. T. A. Hughes and D. L. Shrivastava.—p. 437.
*Renal Edema. H. T. Hughes and D. L. Shrivastava.—p. 445.
Field Study of Lathyrism. T. C. McCombie Young.—p. 453.
Infectivity of Flagellate Form of Leishmania Donovani. L. E. Napier.—p. 481.
*Experimental Prevention of Stone in Bladder in Rats: III. R. McCarrison.—p. 485.

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Effects of Antimony Salts: I. On Conception and Pregnancy in Animals. E. C. Hodgson, A. C. Vardon and Zorawar Singh.—p. 491.
*Effect of Kala-Azar on Leprosy. E. Muir.—p. 497.
*Sodium Hydnocarpate in Leprosy: Improvements in Administration. E. Muir.—501.
*Iodide Antimony Treatment of Leprosy. E. Muir.—p. 507.
*Finding of Parasites in Peripheral Blood of Kala-Azar Cases by Direct Microscopic Examination. H. E. Shortt, Sribas Das and Chiranji Lal. —p. 529.

Enlargement of Spleen and Type of Malaria.—A study of 825 cases leads Covell and Baily to conclude that there does not appear to be any marked difference in the degree of enlargement of the spleen associated with the different species of malaria parasite.

Bactericidal Action of Mercury Compounds.—The mercurial compounds examined by Caius et al. all belong to that group of compounds in which one valence of the mercury atom is satisfied by an organic radical. They may be divided into two classes: (1) compounds derived from phenol, and (2) compounds derived from dyestuffs. In general, the bactericidal power is proportional to the amount of mercury present, and little change is brought about by modification in chemical constitution.

Nature of Porokeratosis.—The association of a familial tendency and the lowered basal metabolic rate in porokeratosis suggests to Acton that there is a partial correlation with hypofunction of the thyroid gland. The lesions can be cured in from two to three weeks by proper thyroid medication, 2 grains (0.130 Gm.) of the dried thyroid gland twice a day. The pulse rate is recorded every four hours. The dose of the thyroid is increased or diminished so as to keep the pulse rate between 90 and 100. Within a few days a very marked improvement is noted, and usually a cure occurs within two weeks.

Acquired Angiomas or Sarcoids.—Acton asserts that sarcoids are angiomatous growths, which are innocent in nature. Four types are described: (1) the tache de Morgan in the papillary venous plexus; (2) Boeck's type which is nodular or diffuse in the subpapillary plexus; (3) the Darier Roussy type deeper down in the cutis, and (4) the erythema induratum type. These angiomas are acquired as the result of irritation of vessels in the different skin layers by some septic condition of the bowel, due either to bacteria or to toxins.

Tropical Cirrhosis of Liver and Fragility of Red Cells.—A condition beginning with splenomegaly and leading to enlargement and eventually cirrhosis of the liver is described by Hughes and Shrivastava as occurring in persons subject to repeated malarial infections. In this early stage of the condition there is generally increased fragility of the red blood cells in hypotonic saline solutions. In advanced cases, this fragility disappears, and there may be increased corpuscular resistance. The relation of the condition to malaria is discussed.

Carbohydrate Tolerance in Muscular Dystrophy.—In two cases of well marked muscular dystrophy (Erb's juvenile type), the following defects in carbohydrate tolerance were found by Hughes and Shrivastava: (*a*) high fasting blood sugar; and (*b*) defective power to store dextrose. Nitrites and phosphates were administered to one patient with a resulting improvement in the dextrose tolerance and in the general condition. The cause of the diminished dextrose tolerance is discussed, and it is concluded that it is due to the wasting and poor blood supply of the voluntary muscles. The renal threshold to dextrose was high in both cases. In one patient the power to store levulose was less than normal and was not improved by nitrites and phosphates. The tolerance to galactose was normal in this case.

Nature of Renal Edema.—The results of an investigation made by Hughes and Shrivastava into the nature of sixteen chronic cases of marked renal edema are reported. In addition to clinical observations, determination was made of the capacity of the kidneys to concentrate urea and chloride, of the amount of chloride (as sodium chloride), urea and cholesterol in the blood, of the ability of the kidney to excrete water and of the urinary changes. In two cases primary retention of water seems to have been the cause of the edema. In the remaining cases it is probable that the dropsy was of prerenal origin, as a result of abnormal capillary permeability to water and salt. Of the latter, one patient exhibited the features of pure lipoid nephrosis, and three patients those of nephrosis complicated by inflammatory renal changes. Incomplete investigations in another case pointed to a condition of pure nephrosis. In the remainder, the observations indicated degenerative and inflammatory changes but the cholesterol content of the blood was not raised. In a case of pure nephrosis and in one of nephrosis with very early nephritic changes, considerable improvement was effected by a high protein diet and large doses of thyroid extract.

Prevention of Stone in Bladder.—The addition of whole milk, in the proportion of two-thirds ounce per rat daily, to a diet capable of causing urolithiasis in 50 per cent of young rats completely prevented the development of phosphatic calculi, according to studies made by McCarrison.

Effect of Kala-Azar on Leprosy.—Muir says that the effect of kala-azar in leprosy is to cause autovaccination of the patient, a process which may be dangerous or harmful in the earlier stages, but is decidedly beneficial as far as the treatment of leprosy is concerned in the third stage of typical skin cases.

Administration of Sodium Hydnocarpate in Leprosy.—While the intravenous injection of sodium hydnocarpate may be admitted as the most effective means of administering hydnocarpus preparations, the blocking of veins has hitherto interfered with prolonged administration in this way. The sodium salts derived from a special fraction of *Hydnocarpus wightiana*, and also the sodium salts of *H. anthelmintica* and *alpina*, block the veins less than the salts from the whole *H. wightiana* oil. Mixing the salts prepared from the whole oil of *H. wightiana* with blood before injection has reduced vein blocking to a much more marked extent. Alternation of intravenous sodium hydnocarpate with subcutaneous infiltration of hydnocarpus oil with creosote is advised by Muir, chiefly because of the hemolytic effect of the former preparation.

Iodide-Antimony Treatment of Leprosy.—So far there has been no drug available in leprosy with any prophylactic power. Muir says that it may be useful in this respect to give iodides occasionally in moderate doses gradually increased to massive ones to contacts and to those who have to work in leprosy institutions.

Finding Parasites in Peripheral Blood in Kala-Azar.—Shortt et al. assert that in proved cases of kala-azar, parasites in the peripheral blood can be found by direct microscopic methods in 78.7 per cent of cases without prolonged examination.

Journal of Neurology & Psychopathology, London

8: 93-190 (Oct.) 1927

Tics and Allied Conditions: I. S. A. K. Wilson.—p. 93.
Id.: II. G. Guillain.—p. 104.
Id.: III. R. Cruchet.—p. 104.
*Intracranial Section of Glossopharyngeus and Vagus Nerves in Man. T. Fay.—p. 110.
Shyness. F. A. Hampton.—p. 124.
Pathology of Postencephalitic Ocular Disturbances in Light of Recent Anatomic and Physiologic Research. L. J. J. Muskens.—p. 132.
Case of Mimic Facial Paralysis. A. Feiling.—p. 141.

Studies on Glossopharyngeus and Vagus Nerves.—The studies made by Fay in two cases would suggest that the glossopharyngeal nerve in its true root components has to do primarily with the sense of taste, and in some way regulates secretory impulses arising from gustatory stimulation. It may well be considered as a nerve of special sense similar to the optic and the auditory nerves. The vagus in all probability supplies common sensation to the pharynx and larynx, dispersing these fibers in their extracranial course directly by its own branches and indirectly by filaments carried by the extracranial trunk of the ninth. It also supplies common sensation to a portion of the external ear. It is undoubtedly the chief motor supply to the pharynx and larynx and probably to the soft palate. It is responsible for the "gag" reflex and for reflex pain in the ear, owing to involvement of its pharyngeal branches. The motor fibers which supply the vocal cord leave by the vagus root and not by the vagus accessory, as has been asserted by some.

Journal of Tropical Medicine and Hygiene, London

30: 285-300 (Nov. 15) 1927

*Etiology of Certain Cases of Recurrent Diarrhea and Certain Obscure Forms of Colitis. A. Castellani.—p. 285.
Yaws and Kahn Test. J. S. Maxwell.—p. 294.

Diarrhea Caused by Metadysentery Bacilli.—Castellani calls attention to a chronic type of colitis characterized by recurrent attacks of diarrhea, generally simple diarrhea, but occasionally dysenteric for brief periods of time. Between the attacks the symptoms are somewhat indefinite and obscure. The patient feels tired, disinclined for work and nervous, and often complains of slight abdominal discomfort and flatulence. The symptoms are so indefinite that very different diagnoses are made: intestinal intoxication, intestinal subinfection, mucous colitis, abdominal neurasthenia; not rarely atypical appendicitis is suspected and an operation is performed. Metadysentery bacilli have been found in these cases.

Lancet, London

2: 1059-1112 (Nov. 19) 1927

*Prostatic Enlargement. C. Wallace.—p. 1059.
Pacemakers of Heart. J. Cowan and G. B. Fleming.—p. 1064.
*Mortality from Rheumatic Fever and Heart Disease. M. Young.—p. 1069.
*Functions of Liver as Affected by Malaria Induced in General Paralytics. R. G. Williams.—p. 1071.
Asthma: Case. D. Perk.—p. 1073.
Neurinoma: Two Cases. J. H. Robinson.—p. 1074.
Intracranial Neoplasm: Case with Unusually Rapid Development of Symptoms. J. Inkster.—p. 1074.

Mortality of Prostatectomy.—Data presented by Wallace show that the mortality from prostatic trouble has not materially fallen; that of prostatectomy has fallen from 20.2 per cent to 14.5 per cent, but the total operative mortality has somewhat risen. The surgeon has been more chary in performing the one-stage operation, and the deaths that formerly would have been recorded under prostatectomy are now to be found under cystostomy. If hospital statistics are to be improved, the patients must seek help earlier than hitherto. A striking fact is the good results that follow the two-stage operation in spite of certain disadvantages.

Mortality of Rheumatic Fever.—Assuming that the mortality rate for rheumatic fever is an approximate index of rheumatic prevalence, Young finds that a suggestion that the local incidence of the disease has a slight but direct relation to the social status of the metropolitan areas and shows a general tendency to be more common in the areas where the conditions of life are least favorable. The mortality from heart disease at the ages in which the great majority of the cases are undoubtedly rheumatic in origin shows apparently a still closer relationship than the prevalence of rheumatism to those environmental circumstances implied by difference in general social status. There is a suggestion that the mortality from cardiac disease in females is more closely related to environmental conditions than in males; but whether this is real or not, and, if real, whether it is attributable to a more continuous and prolonged exposure of the female population to deleterious influences in unhealthy homes, is a question on which an opinion is a hazard.

Functions of Liver as Affected by Induced Malaria.—The conclusions drawn by Williams from his investigations are: (1) Levulose tolerance curves, especially when done in series, are satisfactory tests for detecting and estimating liver derangement. (2) The van den Bergh reaction and tests for urobilin and urobilinogen in the urine help to confirm the results obtained from levulose tolerance curves. (3) The tests reported in this paper indicate that the liver is much more severely affected in malaria than it is in the other conditions which were investigated. (4) Levulose tolerance curves are useful for controlling therapeutic malaria.

2: 1113-1166 (Nov. 26) 1927

Diathesis. A. Garrod.—p. 1113.
Light Treatment at London Hospital. J. H. Sequeira and W. J. O'Donovan.—p. 1118.
Results of Ultraviolet Light Treatment. E. Cassie.—p. 1121.
Induction of Premature Labor: Its Justification. G. W. R. Thomson.—p. 1123.
"Tonsil" Question. F. Stoker.—p. 1125.
Two Cases of Atypical Tetanus. S. T. Irwin.—p. 1127.
*Recovery of Streptococcus Scarlatinae from Experimentally Infected Books. A. R. Balmain.—p. 1128.

Recovery of Streptococcus Scarlatinae from Infected Books.—An investigation made by Balmain has shown that *Streptococcus scarlatinae*, under experimental conditions, will survive on inoculated books and can be recovered from them during a period of four weeks. The number of streptococci was scanty after the second week from the time of inoculation.

South Africa Medical Association Journal, Cape Town

1: 521-548 (Oct. 22) 1927

Pyelitis: Medical Aspect. A. B. M. Thomson.—p. 522.
Id.: Surgical Aspect. A. Radford.—p. 524.
Id.: Roentgen-Ray Aspect. G. C. Field.—p. 525.
Id.: Pathologic Aspect. N. H. Walker.—p. 526.
History of Pharmacology in South Africa. J. M. Watt.—p. 528.
*Paratyphoid Fever Caused by Bacillus Enteritidis (Gärtner). L. F. te Groen and A. Pijper.—p. 534.
*Paresis of Left Arm and Both Legs Associated with Nevus and Mental Defect. H. J. Hugo.—p. 534.

Paratyphoid Fever Caused by Gärtner Bacillus.—Te Groen and Pijper record a case in which *Bacillus enteritidis* Gärtner, which usually gives rise to outbreaks of food poisoning, at first gave rise to symptoms corresponding to those of food poisoning, to be followed by what must be regarded, clinically, as typical typhoid. In a series of about 250 blood cultures made in cases of typhoid in Pretoria, no other bacillus has ever been isolated by Pijper which was not typical *B. typhosus*. The case cited must be regarded as very exceptional. The source of infection was not traced, and no other member of the household had shown any untoward symptoms.

Paresis of Extremities Associated with Nevus and Mental Defect.—Hugo cites the case of a female idiot, aged 7 years, who presented several stigmas of degeneracy. She was destructive, wet and dirty, unable to feed herself, or to do anything for herself. She was inarticulate and unable to walk. Physically, she was well nourished, but much undersized for her age. She suffered from epileptic seizures, the paroxysms being of a very severe nature. She showed the presence of an extensive cavernous nevus hemangioma, which was distributed over the whole of the right side of the neck from about the upper border of the mandible down to the upper margin of the clavicle. This tumor also involved the upper and lower lips. During a period of almost two years, the tumor increased very much in size, so much so that there was almost complete occlusion of the nostrils. There was never any hemorrhage from this tumor. There was paresis of the left arm and both legs, with a slight degree of atrophy of the muscles of these limbs. The child died as a result of status epilepticus.

Tubercle, London

9: 57-104 (Nov.) 1927

*Sedimentation Test in India. C. Frimodt-Möller and P. V. Benjamin.—p. 57.
Distribution of Elastic-Tissue of Lung and Its Significance. S. R. Gloyne.—p. 69.

Sedimentation Test in India.—The sedimentation test was performed by Frimodt-Möller and Benjamin in 500 persons in South India. Of this number, 282 were tuberculous patients in the sanatorium. It appears that the tropical climate influences the test and produces a higher rate of sedimentation than it does in the West. The normal figure for men in South India, at a temperature of 30 C., is 10, with a limit of 15; for women 15, with a limit of 20, expressed in percentage, which is equivalent to a reading of 17.0 per cent and 25.5 mm. for men, and to 25.5 per cent and 34.0 mm. for women. The authors do not believe that the test has any specific value in the diagnosis of tuberculosis; it is valuable simply as a suggestive indication, such as fever. The test cannot be used to determine activity or inactivity in pulmonary tuberculosis, but it gives, nevertheless, a valuable help in deciding the question of activity when the sedimentation rate is considered in due relation to the clinical symptoms of the patients. The prognostic value of the test in pulmonary tuberculosis is, in India, very considerable. The test sometimes gives indication of the oncoming exacerbations of the disease, or of complications, earlier than any other symptoms, and is therefore of value as a guiding factor in the treatment. The test has its greatest scope in patients treated with artificial pneumothorax treatment, where it is, perhaps, of most value in tuberculosis.

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Annales de l'Institut Pasteur, Paris

41: 1045-1138 (Oct.) 1927

Protection of the New-Born with B C G Vaccine. B. Iakhnis.—p. 1045.
Action of Specific Antibodies in Organism. A. Speransky.—p. 1063.
Bacillus Oedematiens in Etiology of Infectious Necrosing Hepatitis (Braxy) of Australian Sheep. A. W. Turner and J. Davesne.—p. 1078.
*Precipitation Phenomena in Serodiagnosis of Cancer. C. Mondain, R. Douris and J. Beck.—p. 1097.
Rôle of Skin in Production of Antibodies, of Anaphylaxis and of Anti-anaphylaxis. E. Klukhine.—p. 1108.
Pathogenic Microbes of Galleria Mellonella. V. Chorine.—p. 1114.

Precipitation Phenomena in Serodiagnosis of Cancer.—Botelho's reaction is simply a precipitation of the albuminoid substances of the serum in an acid medium by a nonspecific precipitating reagent. The formation of the precipitate depends on the quantity of albuminoid substances (excess = solution, deficiency = precipitation). Refractometric correction eliminates a cause of error, but so modifies experimental conditions that they are no longer strictly identical for all serums. The reaction cannot be considered as specific for cancer. The author presents a formula for calculating the results obtained.

Archives Franco-Belges de Chirurgie, Brussels

30: 1-92 (Jan.) 1927

*Subtotal Abdominal Hysterectomy Combined with Ligation of Veins in Puerperal Infection. F. Ferrari and E. Houel.—p. 1.
Autochthonous Origin of Femoral Epiphysitis. H. L. Rocher.—p. 24.
Disturbances of Bone Growth Following Lesions of Epiphyseal Cartilage. G. Henry.—p. 30.
*Volvulus in Young Persons. P. Bohème.—p. 34.
Abnormal Uterine Contractures Following Injection of Lipiodol. Van der Elst.—p. 50.
Proper Procedure in Bilateral Hydronephrosis. G. Lemoine.—p. 52.

Subtotal Abdominal Hysterectomy Combined with Ligation of Veins in Puerperal Infection.—For certain cases of puerperal sepsis the authors advocate subtotal hysterectomy combined with ligation of the inferior vena cava. A leukocyte count of 30,000, with from 85 to 90 per cent of polymorphonuclears, indicates a suppurative lesion of the uterus and constitutes one of the indications for operation. A positive blood culture is an absolute contraindication to operation since it indicates the existence of generalized infection. Thrombosis of the pelvic veins is a constant feature of puerperal sepsis. To prevent embolic extension to the lungs, liver, spleen and other organs, the inferior vena cava is ligated just above the promontory. They have not noted any circulatory disturbances in the lower extremities as a result of such ligation. Their experience is based on seven operative cases, in five of which recovery took place.

Volvulus in Young Persons.—In discussing the pathogenesis of intestinal volvulus in the new-born and in the infant, Bohème points out two varieties, volvulus of the ileocecocolic segment and partial or total volvulus of the small intestine. The first is caused by lack of agglutination of the peritoneal leaf of the right colon to the posterior parietes of the abdomen. In the second variety, the cause is obscure. The diagnosis is difficult, the majority of cases are first recognized at necropsy. The mortality in operative interference is appallingly high.

Archives des Maladies de l'App. Digestif, etc., Paris

17: 841-958 (Oct.) 1927

*Clinical Value of Gastric Chromoscopy. H. G. Mogena and A. Lopez Fernandez.—p. 841.
Studies in Urinary Acidity. R. Goiffon.—p. 856.

Clinical Value of Gastric Chromoscopy.—In order to calculate the value of gastric chromoscopy, Mogena and Lopez Fernandez studied the relation between the time of appearance of the dye in the stomach and the curve of gastric acidity, the influence exercised on the elimination of the dye by various test drinks (neutral, acid or alkaline) and the elimination of the dye in patients who had undergone an operation on the stomach. In subjects having no gastric disturbances and whose stomach contents had a total acidity of 1.5 to 2 per thousand, the dye appeared within from fifteen to twenty-five minutes after injection (into the buttocks). A table shows the results in sixty-four cases of gastroduodenal ulcer. The shortest time taken for the dye to appear was eleven minutes in a case of ulcer of the pylorus, which was also the case presenting the highest acidity (3.6 per thousand). The slowest elimination in a case with free hydrochloric acid took place in forty-nine minutes, with a maximum acidity of 1.2 per thousand. In cases in which free hydrochloric acid was lacking, the dye did not appear during the hour and a half to two hours taken for the test. The elimination time of neutral red fluctuated between eleven and forty-nine minutes. Although it appears that in general a greater acidity corresponds to more rapid elimination and vice versa, this cannot yet be stated as an absolute rule. It was not possible to find a constant relation between the localization of the ulcer and the time of appearance of the dye, although, in general, in ulcers of the lesser curvature, which are accompanied by a low acidity, the dye appears later than in cases of duodenal ulcer, in which the gastric acidity is greater. In a patient who had undergone gastro-enterostomy, the dye was eliminated sooner than in those who had had resection. In order to determine in what part of the stomach elimination took place, the authors injected neutral red before operation and found that only the mucosa of the fundus and the antrum of the pylorus were colored.

Journal de Physiol. et de Pathol. Générale, Paris

25: 489-613 (Sept.) 1927

Biologic Effects of Hyperoxygenated Media. C. Achard, L. Binet and A. Leblanc.—p. 489.
Respiratory Exchange of Residents of Mexico City. J. J. Izquierdo.—p. 495.
Action of Capillary Poisons in Electrocardiogram. J. Freud and Saadi-Nazim.—p. 500.
Calcium Ion: Excitability of Vasodilator Nerves and of the Pneumogastric. J. J. Bouckaert.—p. 507.
Influence of Seleniates on Blood Vessels. A. H. Roffo and R. Lopez Ramirez.—p. 518.
Invisible and Filtrable Forms of Visible Bacteria, Excluding Tubercle Bacillus. P. Hauduroy.—p. 523.
*Bordet-Wassermann Reaction in Scarlet Fever. L. Bétboux.—p. 534.
Pathogenic Power of Filtrable and Invisible Forms of Visible Bacteria. P. Hauduroy.—p. 537.
*Diagnosis of Scarlet Fever by Complement Deviation Reaction. L. Béthoux.—p. 553.

Bordet-Wassermann Reaction in Scarlet Fever.—Positive Bordet-Wassermann reactions in the course of scarlet fever, in the absence of active syphilitic infection, must be attributed to the nature of the antigen used, particularly to its content of acetone-soluble fixative lipoids. The reaction performed according to the technic of Calmette and Massol with the Bordet-Ruelens antigen retains all its value in the course of scarlet fever.

Diagnosis of Scarlet Fever by Complement Deviation Reaction.—From his research Béthoux concludes that neither Saloz and Greenback's alcoholic extract of the blood of scarlet fever patients nor his extract of the spleen of such patients constitutes a specific antigen of scarlet fever. It cannot be utilized in the diagnosis of a mild or abnormal scarlet fever or to distinguish this affection from infectious or toxic scarlatiniform erythemas which may resemble it.

Liége Médical

20: 861-878 (Oct. 9) 1927

*Pelvic Varicocele. Heuze.—p. 861.
Bismuth Salts in Treatment of Syphilis. G. Petges and O. Magimel.—p. 867.

Pelvic Varicocele.—In the three cases of varicocele reported by Heuze, perfect recovery followed ablation of the varicose masses. The patient should be examined standing. To render apparent a venous dilatation of average intensity, the broad ligament should be exposed when the uterus has been exteriorized and fixed. The left side is more often attacked because of the emptying of the ovarian vein of the left side into the corresponding renal vein, the homologue on the right emptying directly into the inferior vena cava.

Lyon Médical, Lyons

140: 357-384 (Oct. 9) 1927

*Encephalitis and Pregnancy. H. Pigeaud.—p. 357.

Encephalitis and Pregnancy.—In one case reported by Pigeaud, mild encephalitis, of the peripheral form, supervened

in the third month of pregnancy; in the other, there was a severe encephalitis in the seventh month of a pregnancy until then well supported. In both cases the fetus died. In the second case the persistently high temperature may account for the death of the fetus; in the first case, however, it must be attributed to the action of the encephalitic virus.

Paris Médical

63: 281-308 (Oct. 15) 1927

Psychiatry in 1927. A. Baudouin and N. Péron.—p. 281.
*Relative Hypertension of Cerebrospinal Fluid. H. Claude, A. Lamache and J. Dubar.—p. 289.
Rôle of Syphilis in Etiology of So-Called Essential Epilepsy. L. Marchand and E. Bauer.—p. 294.
Catatonia and Extrapyramidal Syndromes. P. Guiraud.—p. 301.

Relative Hypertension of Cerebrospinal Fluid.—The cerebrospinal pressure taken at rest in the recumbent position has a constant value for each individual. There is relative hypertension every time that the pressure of the fluid, under the influence of a mechanical, physiologic or infectious cause, exceeds its constant value, although remaining within normal limits. This relative hypertension is responsible for numerous disturbances. Six illustrative cases are reported. Of the sixteen cases studied, five were due to infectious diseases; in three there was intoxication (alcohol, coffee, theobromine); in two there had been trauma. The last five observations were in patients with cardiac disease during the period of decompensation and in subjects at the menstrual period. The mechanism of relative hypertension may be larval serous meningitis. Two methods of treatment are suggested: hypertonic solutions and lumbar puncture.

Presse Médicale, Paris

35: 1217-1232 (Oct. 8) 1927

*Mustard Plaster Test in Diseases of Nervous System. André-Thomas.—p. 1217.

Mustard Plaster Test in Diseases of Nervous System.—The mustard plaster is applied to the healthy limb as well as to the affected one, or symmetrically on both sides when it is a question of examination of the trunk or of the head. From his own experience and from a perusal of the literature, André-Thomas concludes that the mustard reaction is not a spinal reflex. According to Bruce's hypothesis, each sensory fiber, before being distributed to the skin, divides into two parts, one sensory, the other vascular; irritation collected by the sensory fiber goes to the junction with the vascular fiber, which it traverses in the opposite direction. The manner of localization of the reaction led to the supposition that the field of the vascular fiber is exactly the field of the sensory fiber. Everything indicates that the bifurcation occurs at the periphery, quite close to the skin.

35: 1249-1264 (Oct. 15) 1927

Specific Dynamic Action of Albumins in Man: New Exploration Test of Protein Function of Liver. P. Merklen and J. Guillaume.—p. 1249.
*Shock in Course of Therapeutic Fibrosis of Varices. G. Delater.—p. 1251.
*Double Arterial Murmur of Aortic Insufficiency. L. Katsilabros.—p. 1251.

Shock in Course of Therapeutic Fibrosis of Varices.—Immediately after an injection of a salicylate solution, one may see (about once in 200 times) an attack of vagotonia (slowing of the pulse, cold sweats, nausea without vomiting). In one case the signs of hemoclastic shock were discovered and an injection of epinephrine cut short the attack which consisted of a transitory arrest of the heart's action and of respiration every time a 40 per cent salicylate solution was used. In another patient, who received 2 cc. of 30 per cent solution, there was a lipothymia. The use of quinine suppressed all disturbances. Quinine exposes patients rather to phenomena of the toxic order, which are misleading and tardy. They feel depressed for ten or fifteen days, and sometimes present a miliary eruption, accompanied by itching. These symptoms may gradually disappear if treatment is continued; oftener, the treatments must be spaced further apart and the symptoms disappear only after the completion of the treatment. Delater has seen five instances of sudden manifestations after the use of doses exceeding 1 Gm. of quinine. The disturbances arise after the patient has reached home; but if they come on immediately after the injection, they pass for anaphylactic symptoms. Anaphylactic phenomena can occur after administration of quinine as well as after the use of salicylates. Women are more liable to them than men. In the course of several thousand injections, Delater observed only mild incidents which he was always able to avoid by means of preventive epinephrine injections. In one case, having abandoned the salicylate as being inactive, biniodide of mercury had to be substituted for quinine, which had produced urticaria.

Double Arterial Murmur of Aortic Insufficiency.—Katsilabros was able to provoke the double murmur of Durozier by compressing the femoral artery, not with the stethoscope itself, but with the finger. By compressing the femoral artery, 1 or 2 cm. below the inguinal fold, with one or two fingers, and auscultating above with the binaural stethoscope, without making any pressure, there is heard a systolic murmur in normal cases. In cases of aortic insufficiency, there are two murmurs: one systolic, the other diastolic. With the binaural stethoscope, the second murmur, if it exists, is rough and long. Following this procedure, the author found the double murmur in nearly all the cases of aortic insufficiency in which it was found by the usual stethoscopic pressure, and in four cases in which it was almost impossible to perceive it by the latter method. The double murmur was not found by this method in cases other than those of aortic insufficiency. It is possible, with the application of the brassard to the forearm to find the double murmur in the brachial artery in a large number of cases of aortic insufficiency. It was never found in normal cases, but was present in some aged patients with hypertension and atheroma, if the pressure exerted was very strong. A practical formula for obtaining the suitable pressure is given.

Progrès Médical, Paris

53: 1561-1592 (Oct. 8) 1927

*Repeated Placental Sclerosis. H. Vermelin.—p. 1567.
Chronic Osteomyelitis with Fistulae. L. Plisson.—p. 1568.
Adenitis of Scarlet Fever in Children. Nobécourt.—p. 1570.
Attempted Physiotherapy of Impotence. E. Savini and S. Ackerman.—p. 1583.
Retroversions. Marmeaux.—p. 1585.
Predisposition in Acute Delirium and Delirium Tremens. H. Damaye.—p. 1586.

Repeated Placental Sclerosis and Habitual Death of Fetus.—In a woman otherwise healthy, four pregnancies resulted in the expulsion of a dead fetus before term. The placenta indicating albuminuria in the second, strict measures were taken in the third pregnancy, but although albuminuria was prevented, premature expulsion occurred. The placenta was of the syphilitic type. In spite of antisyphilitic treatment during the fourth pregnancy, a dead fetus was delivered at the end of the seventh month. Some parts of the placenta were normal and some necrotic. Vermelin was unable to decide whether the placental sclerosis was to be explained by endometritis or by heredosyphilis. Four serum reactions in husband and wife were negative. The only suspicious feature was a probable epilepsy in the husband's father.

53: 1593-1644 (Oct. 15) 1927

*Old and New Research in Active Immunization Against Measles. R. Debré and P. Joannon.—p. 1601.
*Association of Measles and Diphtheria. P. Joannon.—p. 1610.
Vincent's Angina. L. Ramond.—p. 1623.

Old and New Research in Active Immunization Against Measles.—Serum prophylaxis of measles is directed against the mortality, whereas active immunization has in view the conquest of the morbidity. Debré and Joannon review the history of measles in three periods beginning at the end of the eighteenth century. None of the procedures for active immunization so far used possess the simplicity, efficacy and innocuousness necessary for a method of vaccination for ordinary use. The degree and duration of virulence of the blood in measles patients, the results of inoculations with small amounts of virus, the protective rôle played by partial immunity, antecedent or subsequent to inoculation with the virus, the existence of attenuated morbilliform infections consisting clinically in slight febrile attacks with stomatitis and leukopenia, but representing from the biologic point of

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view real equivalents of the disease, have been investigated and there is reason to hope that a satisfactory method of measles vaccination will be found.

Association of Measles and Diphtheria.—Diphtheria which accompanies or follows measles seems to be more severe than measles appearing after diphtheria. In general, the organism which has not been in contact with the measles virus contracts typical measles on exposure; on the other hand, a previous attack protects against measles. The receptivity of the human being to diphtheria is relative. There is a threshold varying from one individual to another, and in the same individual from one time to another. Joannon made the Schick test in 115 measles patients and in forty-two controls. Positive Schick reactions were present in 40 per cent of the measles patients and in 7 per cent of the controls. The fact that a larger proportion of the controls than of the measles patients had lived in cities may have been a factor. Phenomena observed in three cases seemed to indicate that the organism becomes momentarily incapable of neutralizing the toxin deposited in the skin.

Rassegna Internazionale di Clinica e Terapia, Naples

8: 720-805 (Aug.) 1927

Kaposi's Sarcoma. R. Paolini.—p. 514.
*Ozena. G. Calogero.—p. 537.
Cardiac Reanimation with Epinephrine. G. Siciliani.—p. 539.

Chaulmoogra Oil in Treatment of Ozena.—In a few ozena patients, chaulmoogra oil, applied locally with petrolatum every other day, has seemed to yield satisfactory results. In some cases injections were also used.

Tumori, Milan

1: 357-594 (Sept.-Dec.) 1927

Sporothrix and Tar Cancer. L. Lazzarini.—p. 357.
*Cancer. S. Cioffari and M. Akkerstein.—p. 371.
Lymphosarcomatosis. M. Aresu and R. Scalabrino.—p. 403.
Diffuse Fibro-Endotheliomatosis. V. Cavallaro.—p. 533.
Cancer Metastases in the Spleen. N. Orlandi.—p. 545.

Biologic Diagnosis of Cancer.—In sixty cases of tumors, fifteen of pregnancy and eighty-seven of miscellaneous diseases, Cioffari and Akkerstein tried the Pignotti, Roffo, Brossa-Bozzolo-Lombardi, Botelho and Kahn tests. In the sixty cases of neoplasm the Pignotti test yielded 68.3 per cent positive, 5 per cent doubtful and 26.6 per cent negative results. Among the other 102 cases, the result was: positive, 7.8 per cent; doubtful, 8.8 per cent and negative, 83.4 per cent. The gestation group, by itself, showed 40 per cent of positive reactions and 13.3 per cent of doubtful results. In the cases of new growths the Pignotti test gave a smaller percentage of positive results than the Roffo or Brozza tests and about the same as the Botelho and the Kahn tests. In other diseases, however, it was the most often negative, being followed by the Botelho, Roffo, Kahn and Brossa tests. For use in a suspected case of cancer, the Botelho test has much to commend it.

Archivos de Endocrinología y Nutricion, Madrid

5: 245-291 (Nov.-Dec.) 1927

*Endemic Goiter. J. Vidal Jordana.—p. 245.
*Synthalin. E. Carrasco Cadenas, F. Lago and F. Jiménez.—p. 267.
Diabetic Acidosis. E. Carrasco Cadenas and A. Urgoiti.—p. 287.

Treatment of Endemic Goiter.—Vidal Jordana describes conditions in a mountainous region where goiter is endemic. The prevalence varies from 9 per cent in some valleys to 25 per cent in others; only 3 per cent, at the most, are in men. The most common types are the diffuse and the nodular. The diffuse parenchymatous variety is occasionally seen in the new-born, but is frequent in girls, specially toward puberty. The outstanding etiologic factor is the food deficiency caused by the extreme poverty of the people. Intermarriage is common. About 30 per cent of the goiters develop toward puberty and 25 per cent during the first pregnancy. Some have appeared after an emotional shock. In a patient with epilepsy, the goiter disappeared following treatment with barbital. With iodized salt, 60 per cent of juvenile cases improved, as compared with 70 per cent with iodine-iodide-thyroid tablets. Among recent cases in pregnancy, only 35 per cent improved with the tablets and even less than 25 per cent with an organic preparation. Any surgical treatment is out of the question under the present circumstances.

Synthalin as Contrasted with Insulin in Diabetes.—From his study of twenty-six cases, Carrasco Cadenas and others conclude that synthalin decreases blood sugar, but not as surely, regularly and promptly as insulin. In four cases, it had to be stopped, because of intolerance. In contrast to insulin, synthalin leaves acidosis untouched. There is some doubt as to whether the mere decrease of sugar values is actually important.

Gaceta Médica de México, Mexico City

58: 467-554 (Aug.) 1927

*Syphilitic Appendicitis. J. Mesa y Gutiérrez.—p. 467.
Management of Labor. E. Landa.—p. 484.
Chemical Analysis of Blood. F. de P. Miranda.—p. 496.

Syphilitic Appendicitis.—In a patient with chronic appendicitis, histologic examination of the specimen removed showed granuloma. This was all that remained of the original gumma which had perforated the muscularis. In syphilitic appendicitis, the history of syphilis matters but little, as many syphilitic patients suffer from ordinary appendicitis. Diagnosis must be histologic.

Lisboa Médica, Lisbon

4: 355-410 (Aug.-Sept.) 1927

*Primary Sarcoma of Prostate. A. Gomes.—p. 355.
*Treatment of Poliomyelitis. F. Formigal Luzes.—p. 367.

Primary Sarcoma of the Prostate.—Gomes adds one case to the eighty-six cases already reported in the literature. His patient was 34 years old and died ten months after the disease started.

Physical Therapy of Poliomyelitis.—Out of ninety-seven patients with infantile paralysis, seen by Formigal from December, 1922, to July, 1927, only forty-four completed the treatment. Twenty-nine were under 2 years of age. Of the forty-four, 47.8 per cent recovered, 38.6 per cent improved and 13.6 per cent did not change. The maximum result is usually secured after from one to three months (and as many courses of treatment). The method used was essentially Bordier's. (THE JOURNAL, Oct. 29, 1927, p. 1562.)

Repertorio de Medicina y Cirugía, Bogota

18: 335-385 (April) 1927. Partial Index

*Furunculosis. P. J. Amaya.—p. 339.

Summer Epidemic of Boils.—Hot weather (38 C. in the shade) was followed by an outbreak of furunculosis at Girardot. Fully 70 per cent of the inhabitants were involved. Examinations of the pus disclosed *Staphylococcus tetragenes* and streptococci. A contributory cause may have been the muddy water used for bathing. Autovaccines proved efficient in treatment.

Revista de Ciencias Médicas, Mexico City

6: 223-265 (July-Aug.) 1927. Partial Index

*Hookworm Disease. R. Cruz y Reyes.—p. 223.

Treatment of Hookworm Disease.—Duodenal introduction of tetrachlorethylene mixed with chenopodium oil proved very efficient in hookworm cases. The method may often be used when other anthelmintic methods are contraindicated. The time necessary for the bucket to reach the duodenum (forty-five to sixty minutes in twenty-five cases) was invariably less than that reported by most clinicians. Rivas' intestinal thermic therapy proved unsatisfactory against hookworms and whipworms.

Revista de Especialidades, Buenos Aires

2: 333-486 (Aug.) 1927. Partial Index

*Use of Glucose in Bronchopneumonia in Children. B. Soria and E. Halac.—p. 462.
*Melena in the New-Born. S. I. Bettinotti and C. Larguia Escobar.—p. 481.

Glucose in the Treatment of Infantile Bronchopneumonia.—In more than 120 cases of bronchopneumonia in children the

death rate decreased from between 60 and 65 per cent to 35 per cent following the use of a 10 per cent glucose solution. In spite of its drawbacks, the intraperitoneal route seems to be the most advantageous. Shock may always be prevented by the previous or simultaneous use of epinephrine (1:1,000). Glucose solution is also useful in other infections and in alimentary intoxications.

Melena in the New-Born Cured by Transfusion.—At the Rivadavia Hospital, among 5,500 births since 1924, there have been only three cases of melena of the new-born. In the case reported, both hematemesis and melena were controlled by a transfusion of the mother's blood through the upper longitudinal sinus.

Revista Médica de Barcelona

8: 237-339 (Sept.) 1927. Partial Index

*Spinal Anesthesia Accident. F. Doménech Alsina.—p. 253.
Autonomic System and Blood Sugar. J. Puche Alvarez.—p. 255.
*Chronic Ulcers of the Leg. G. Marañón and J. Ferrero.—p. 285.

Ouabain in Accidents Following Anesthesia.—In two cases of spinal anesthesia with procaine-epinephrine, the patients lost consciousness and the heart apparently stopped, though breathing continued. An intravenous injection of ouabain (0.25 to 0.50 mg.) restored normal conditions.

Action of Testicular Graft on Chronic Ulcers of the Leg.—A testicular graft in a eunuchoid was followed by almost total disappearance of an enormous unyielding ulcer on the leg. After a new trauma in the same region, the ulcer, however, reappeared.

Revista de Medicina, São Paulo

12: 239-421 (July) 1927. Partial Index

Total Inversion of Viscera. A. Rodrigues de Souza.—p. 245.
Triatomidae (Reduvidioidea). C. Pinto.—p. 271.
*American Leishmaniasis. J. de Alcantara Madeira and H. Cerruti.—p. 311.
Serum Treatment of Scarlet Fever. B. Mendes.—p. 324.

Brachmachari's Test in American Leishmaniasis.—While Brachmachari's test may be positive for kala-azar, it is not specific for leishmania infections in general. Alcantara and Cerruti tried it in 133 serums, including thirty-one from patients with leishmania infection of the skin. Among the thirty-one the test was positive ten times and weakly positive once. Among the other 102 cases, it was twenty-nine times either frankly or weakly positive.

Revista de la Soc. Argent. de Biología, Buenos Aires

3: 509-572 (Sept.) 1927. Partial Index

*Suprarenal Transplantation. B. A. Houssay and E. A. Molinelli.—p. 509.
Histopathology of Texas Fever. F. Jiménez et al.—p. 520.
Reticulo-Endothelial System in Texas Fever. F. Jiménez.—p. 541.
Vagus and Epinephrine. B. A. Houssay and E. A. Molinelli.—p. 563.

Epinephrine Discharge in a Suprarenal Gland Anastomosed to a Cervical Vessel.—Houssay and Molinelli anastomosed the suprarenals of a dog to the carotid artery and jugular vein of another animal. The gland thus transplanted retained its secretory reactions to splanchnic excitation and injection of nicotine.

Santa-Fé Médico, Rosario de Santa Fe

2: 207-258, 1927. Partial Index

*Suprarenal Secretion. G. Viale.—p. 207.
Weight of New-Born Infants. P. Rueda.—p. 213.

Colin as a Possible Suprarenal Hormone.—Viale found about twice as much colin in the blood plasma of normal dogs as in dogs dead forty-eight or one hundred hours after suprarenalectomy. Roughly, the figures were 0.016 and 0.008 Gm., respectively, per thousand cubic centimeters. These experiments seem to prove the existence of a colin forming function in the suprarenal, which liberates the product according to the needs of the body. As epinephrine is sympathicotropic and colin vagotropic, the discharge may be guided by the necessity of stimulating one or the other branch of the nervous system. The increased blood pressure in suprarenal (cortical) growths may be explained by the destruction of the colin secreting area. Hypertension might also be caused by deficient colin production.

Sciencia Médica, Río de Janeiro

5: 489-562 (Sept.) 1927. Partial Index

*Madura Foot. O. Da Fonseca, Jr., and A. E. De Arèa Leão.—p. 536.

Madura Foot Caused by Scedosporium Apiospermum.—This is the fifth case so far reported of mycetoma caused by *Scedosporium apiospermum*. Three cases have been described in Italy and one in Brazil.

Archiv für Dermatologie und Syphilis, Berlin

153: 539-812 (Oct. 23) 1927

Acquired Syphilis of Intestines. K. Nishikawa.—p. 539.
Elastometry in Dermatology. F. Schmidt-Labaume.—pp. 564 and 766.
Capillary Figures on Margins of Necrotic Areas. S. Bettmann.—p. 574.
Tuberculoid Leprosy. V. Klingmüller.—p. 584.
Etiology of Granuloma Annulare. O. Dittrich.—p. 599.
Iontophoretic Treatment of Alopecia. J. Sellei and J. Fenyö.—p. 603.
Chemical Analysis of Hypersensitiveness of Skin After Arsphenamine Dermatitis. W. Frei and R. L. Mayer.—p. 606.
Response of Allergic and Nonallergic Skin to Inflammatory Chemical and Physical Irritations. E. Rajka and K. Pogány.—p. 615.
Epidermolysis Bullosa Hereditaria. Heymann.—p. 624.
Dermatograms. S. Bettmann.—p. 637.
Changes at Internal Urethral Orifice in Gonorrhea in Women. R. Frühwald.—p. 649.
Alder Wood Dermatitis. S. Brügel and A. Perutz.—p. 661.
*Skin Tuberculosis and Immunity of Organism. F. von Poór.—p. 692.
*Relation Between Skin and Vitamins. W. Richter.—p. 697.
Chronic Atrophic Dermatitis with Formation of Multiple Nodules and Cords. E. Delbanco, A. Lippmann and P. Unna, Jr.—p. 706.
Brooke's Epithelioma Adenoides Cysticum. L. N. Maschkillejsson.—p. 721.
Medicinal Skin Emboli. W. Freudenthal.—p. 730.
Poikilodermia Atrophicans Vascularis with Unusual Findings. H. G. Rottmann.—p. 747.
Testing Hepatic Function in Syphilis. H. Biberstein and W. Scholz-Sadebeck.—p. 755.
Idiosyncrasy to Barley Dust. E. Urbach and M. Steiner.—p. 772.
Rôle of Finger Nails in Mechanism of Infection with Anthrax. H. Lindtrop.—p. 793.
Mucin in Skin Diseases. C. Kreibich.—p. 799.
Blue Nevus. C. Kreibich.—p. 804.
Granuloma Senile. C. Kreibich.—p. 807.

Relations Between Clinical Pictures of Skin Tuberculosis and Immunity of Organism.—Poór attempts to establish parallelisms between various manifestations of tuberculosis in the skin and the degree of immunity in the organism. In many cases in which the resistance of the organism as a whole is low, the skin presents an almost absolute immunity. In another group of persons, the skin is the only organ in which immunity is lowered. In these persons, healthy and free from tuberculosis, the characteristic tuberculous lesion—tuberculum anatomicum—appears at the site of infection. In other organisms the virus spreads and the fight against the antibodies takes place in multiple foci, determined by the variations in structure and in degree of esophylaxis of the skin in different regions. The clinical picture here is that of tuberculids—tuberculosis papulo-necrotica when the localization is on the extremities, lichen scrofulosorum when the localization is the follicles. Spontaneous healing is the chief characteristic of this type of tuberculous lesion. It is found in persons with mild, benign general tuberculosis with diminished histogenous skin immunity. The general absence of tubercle bacilli in these lesions and the fact of spontaneous healing are evidences of the capacity of the organism to create immunity. Lupus vulgaris, on the other hand, testifies to a weakened immunebiologic reaction capacity. It is found in persons with tuberculosis that is not so mild but is still benign, who have decreased immunity of the skin, and in persons with temporarily decreased skin immunity (lupus vulgaris postexanthematicus). In patients presenting tuberculosis miliaris ulcerosa cutis, the organism is no longer producing any antibodies. The immunity function is paralyzed. In the skin the bacilli, though present in large numbers, no longer excite a local reaction.

Experimental Studies in Relations Between Skin and Vitamins.—Richter applied spinach juice on a compress to the shaved skin of guinea-pigs. The animals were then put on a diet entirely lacking in vitamin C. Half of the animals remained well, the others died. Another series of animals were treated similarly except that minerals (potassium, calcium, magnesium, sodium, combined with phosphorus, sulphur and hydrochloric acid, and traces of silicic acid) were added

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to the spinach juice. In this group the mortality was 30 per cent. A third series of guinea-pigs were kept on the avitamin diet for a few days before the above described treatment was started. In 60 per cent of these animals regeneration set in within six days, and the mortality curve fell rapidly after the eighth day. The comparatively high mortality in these experiments is explained by complicating infections. Richter draws the following conclusions: (1) The skin is able to absorb vitamins. (2) From the fact that the spinach juice expressed according to the method used by him contained only slight traces of chlorophyl and that it yet possessed so potent a vitamin action, it must be assumed that the vitamin is not bound to the chlorophyl alone. (3) Since the addition of minerals to the spinach juice considerably improved the results, it appears that minerals have the property of activating vitamins. (4) Regeneration from injury due to lack of vitamins is possible by this method, but only up to a certain degree.

Deutsches Archiv für klinische Medizin, Leipzig

156: 129-256 (Aug.) 1927

In How Far Is Genuine Arterial Hypertension Anatomically Conditioned? A. Rühl.—p. 129.
*Internal Treatment of Gallstones. I. Matsuo.—p. 162.
*Relation of Hypertonia to Hyperglycemia. H. Voegelin.—p. 178.
*Treatment of Irregular Heart Action with Quinidine. G. Eismayer.—p. 182.
Sodium Chloride Regulation. L. Heilmeyer.—p. 200.
Diabetic Coma and Insulin. T. Weiss.—p. 226.

Internal Treatment of Gallstones.—Matsuo tabulates forty-seven cases of gallstones treated by means of the duodenal sound. Of 187 he has cured completely fifty-four (or 30 per cent) and improved sixty-seven—in all, 60 per cent were favorably influenced. Apparently, the stone is easily washed out. Statistics show that in Japan, on account of the food, the soft pigmented stone is more common than the hard cholesterol lime stone, while in Europe the latter is more often seen. The soft pigmented stone is more easily dislodged. Then, too, in Japan, stones are generally in the choledochus, whence they are more easily washed out. The usual instillation dose was 40 cc. of a 33 per cent magnesium sulphate solution. Often the simultaneous injection of pilocarpine and solution of pituitary enhances the action of the duodenal treatment. For the severe diarrhea following this treatment, the author administers 5 per cent peptone and whole milk, which at the same time builds up the strength of the exhausted patients.

Relation of Hypertonia to Hyperglycemia.—In seventeen patients with arterial hypertension, there was no rise of the blood sugar in a fasting state. If these patients receive 20 Gm. of glucose in 100 cc. of water, curves, which do not differ in any way from those of the well, may be observed after fifteen minutes. The cases included conditions of chronic nephritis, secondary and primary atrophic kidneys and arteriosclerosis. There seems to be no relation between arterial hypertension and any special behavior of the blood sugar, either after administration of 20 Gm. of glucose alone or combined with 100 Gm. of carbohydrates in the form of starches.

Treatment of Irregular Heart Action with Quinidine.—In about 25 per cent of Eismayer's cases arrhythmia was eliminated, at least for a few months, by means of treatment with quinidine. This remedy, however, brings dangers with it (embolism, sudden arrest of heart action, aggravation of the heart disease). Hence, quinidine should not be used in cases in which compensation has not been obtained with digitalis. Patients under treatment with quinidine must be kept in bed and be under continual observation. After regulation is begun, the conduction time can be determined by means of the electrocardiograph. When the P-R interval becomes greatly lengthened or severe by-effects, such as collapse or Adams-Stokes attacks appear, the remedy must be discontinued. Before quinidine treatment is begun, a test dose should be given, and if there are symptoms of hypersensitiveness the treatment should not be given. On account of the danger, quinidine treatment is not to be recommended for general practice.

Deutsche medizinische Wochenschrift, Berlin

53: 1757-1806 (Oct. 14) 1927

Principles and Results of Brain Surgery. F. Krause.—p. 1757.
Conditions of Optimal Chemotherapeutic Action. H. Kroó and F. O. Schulze.—p. 1759.
Diphtheria and Septic Sore Throat. H. Dold.—p. 1760.
Phrenic Nerve Symptoms. E. Simenauer.—p. 1763.
Meinicke Syphilis Reactions. E. Meinicke.—p. 1764.
Tuberculin Diagnosis in Childhood. W. Landau and H. Moosbach.—p. 1765.
*Postnarcotic Icterus. B. Cohn.—p. 1766.
Treatment of Renal Tuberculosis. P. Janssen.—p. 1768.
Treatment of Urinary Retention. E. Joseph.—p. 1770.
Treatment of Prostatic Hypertrophy. M. Zondek.—p. 1773.
Postoperative Care. M. Kappis.—p. 1775. C'tn.
Intramuscular and Subcutaneous Calcium Treatment. J. Schaffler.—p. 1778.
Surgery Plus Radium in Cancer of Breast. Steinthal.—p. 1779.
Plastic Repair of Facial Deformity After Harelip Operations. P. Manasse.—p. 1780.
Care of Appendiceal Stump. S. von Lewicki.—p. 1780.
Foreign Bodies in Rectum. E. Troján.—p. 1781.
Epidemiology of Weil's Disease. W. H. Hoffmann.—p. 1781.
Albumin-Buttermeal. H. Buschmann.—p. 1782.
Experience with Müller-Ballung Reaction. M. Löffert.—p. 1783.
Revolving Tent for Open Air Treatment. P. Hartmann.—p. 1783.
Alleged Diphtheria Epidemic in Berlin. H. Dornedden.—p. 1784.
Does Diphtheria Epidemic Threaten Germany? J. Schwalbe.—p. 1785.
Physicians of Welfare Organizations and Practising Physicians. F. Rott.—p. 1785. C'td.

Postnarcotic Icterus.—Three days after a typical appendectomy in Cohn's patient, a man, aged 33, icterus appeared. It was accompanied by somnolence, on which delirium followed. After four days he began to improve and in nine days he had recovered. The patient was a habitual drinker and Cohn believes that there existed a latent hepatic lesion which was activated by the chloroform used as narcotic. In spite of the greater difficulty in the use of ether in alcoholic patients, it should be employed instead of chloroform, since ether never causes this complication.

Klinische Wochenschrift, Berlin

6: 1977-2024 (Oct. 15) 1927

Heart in Obesity. Von Romberg.—p. 1977.
*Pancreas and Fat Absorption. H. Licht and A. Wagner.—p. 1982.
*Climatic Factors in Light Erythema and Pigmentation. R. Stahl and G. Simsch.—p. 1984.
Changes in Gas Metabolism in Schizophrenic Subjects. S. Fischer.—p. 1987.
Physiology of Crying in Infants. H. Vollmer and S. Lee.—p. 1990.
Superfecundation and Blood Grouping. A. Augsberger.—p. 1992.
*Chemical Researches on Arterial, Capillary and Venous Blood. K. Karger.—p. 1994.
Retinitis Nephritica. V. Kollert.—p. 1995.
Blood Pressure Registration with Electrocardiographs. K. Trommer.—p. 1996.
Mineral Metabolism in Anaphylaxis. A. Schittenhelm, W. Erhardt and K. Warnat.—p. 2000.
Is Glucose the Hormone of Insulin Secretion? E. Geiger.—p. 2000.
Enlarged Hearts in Childhood. R. Sperling.—p. 2001. C'en.
American Impressions. O. Gans.—p. 2004. C'en.

Pancreas and Fat Absorption.—The influence of insulin on absorption of foodstuffs was studied in patients with pancreatic disease with severe disturbances of absorption and in pancreatectomized dogs. Doses of insulin sufficient to obviate the disturbance in carbohydrate utilization had no influence on the disturbances in foodstuff absorption. Ligation of all the excretory ducts of the pancreas in dogs led to the same severe disturbances of absorption as follow pancreatectomy. The authors conclude that the pancreas does not yield an internal secretion promoting absorption of foodstuffs.

Climatic Factors in Light Erythema and Pigmentation.—Stahl and Simsch found that hyperemia of the skin (from heat, as on a hot summer day, or as a reaction to cold baths or brisk rubbing) furthers sunburn and subsequent pigmentation. If the skin remains pale after a cold bath, the tendency to erythema is lessened. The pigmentation, on the other hand, is relatively intense. A cool wind, which similarly leads to anemia of the skin, decreases the tendency to erythema and favors tanning.

Chemical Researches on Arterial, Capillary and Venous Blood.—Except for residual nitrogen and urea, Karger declares that it is a mistake in chemical examinations of the blood to apply to the whole of the circulating blood determinations made for blood of only one of the three systems—

arterial, capillary and venous. The concentration of sugar was found in many hundreds of examinations to be higher in the capillaries and arteries than in the veins. The average difference was 21 mg. per cent. This held true for diabetic patients as well as others. The content of sodium chloride was the same for arteries and capillaries, if one allows a 10 mg. per cent margin of error, but in only 65 per cent of the cases examined was there agreement between the arterial and venous blood; in 25 per cent the sodium chloride concentration of the venous blood was lower (up to 40 mg. per cent), in 10 per cent it was higher (up to 60 mg. per cent) than in the arterial or capillary blood.

Münchener medizinische Wochenschrift, Munich

74: 1739-1778 (Oct. 14) 1927

Amebic Hepatitis. O. Fischer.—p. 1739.
*Periodic (Acetonemic) Vomiting in Childhood. A. Uffenheimer.—p. 1741.
Predominence of One Half of Brain. W. Riese.—p. 1749.
How Does Psychotherapy Act? F. Mohr.—p. 1750.
*Blood Sugar Examinations in Pulmonary Tuberculosis. H. Axhausen.—p. 1752.
*Sources of Error in Gastro-Enterostomy. E. Hertel.—p. 1754.
Temporary Edema of Eyelids in Otogenous Meningitis Serosa. H. Richter.—p. 1755.
*Skin Diseases in Disturbances of Ovarian Function. O. Herschan.—p. 1756.
Relation Between Thyroid and Pancreas. K. Csépai and Z. Ernst.—p. 1757.
*Relation of Blood Groups to Diseases: Heterohemagglutination. J. Warnowsky.—p. 1758.
*Raw Food Diet. H. Malten.—p. 1760.
Simple Leg Support in Obstetric Interventions. F. von Mikuliez-Radecki.—p. 1761.
Value of Typhoid Inoculation. M. Knorr.—p. 1761.

Periodic (Acetonemic) Vomiting in Childhood.—The case of cyclic vomiting which Uffenheimer reports has a number of special characteristics. Acetonemia was present, but not in all stages of the attacks. The general deterioration seemed to be caused by the abrupt, extraordinary change in the blood and secondarily in the organs on account of the great loss of fluids by vomiting. At the height of the attack, there was present a convulsive state of the stomach and intestine, which the author described as of tetanic origin. During this convulsion, which appeared soon after the ingestion of food and closed and rendered motionless the stomach, gastric juice flowed in in such extraordinary amount as to drain and demineralize the blood and the viscera. The stomach became so enormously distended that the least amount of food taken forced it—because of the impossibility of delivering its contents toward the pylorus—to empty itself by vomiting. There were no stools because of the spasms as well as because of the dehydration. During the attack, the blood did not show the lymphocytosis postulated by Hecker, but a striking lymphopenia simultaneously with polynucleosis. Various symptoms of nervous hypersensitiveness led to the diagnosis of a tetanic condition. But a slight albuminuria and repeated excretion of hyaline and granular casts was observed. The excretion of casts must be attributed to the acidification of the urine, perhaps partly to the use of calcium bromide. Uffenheimer's review of the literature indicates that acetonemia need not stand in the foreground. Tetanic symptoms are of importance. The patient nearly always presents nervous or neuropathic characteristics with a pronounced Chvostek sign. The intestinal tetany belongs to the group of tetany of the smooth musculature.

Blood Sugar Examinations in Pulmonary Tuberculosis.—In fifty-eight cases of pulmonary tuberculosis, the blood sugar values lay within normal limits in twenty-seven. The lowest was 36; the highest, 152; the average, 86. A table shows that there was no relation between the activity of the disease and the height of the blood sugar curve. Exudative and productive forms of the disease show an entirely irregular distribution of the blood sugar values within wide limits. The blood sugar height is not definitely influenced by the tendency of certain disease processes to develop.

Sources of Error in Gastro-Enterostomy.—Cicatricial pyloric stenosis in which the creation of a new outlet acts to save life is the only indication for gastro-enterostomy. In other ulcerous conditions it is difficult to perform and uncertain in results, especially if neurotic and spastic conditions predominate. It must not be employed without a demonstrated pathologic lesion.

Skin Diseases in Disturbances of Ovarian Function.—In five cases of chronic skin disease based on disturbed internal secretion, Herschan was able to effect a cure with organ extracts. Whether they have a specific organic action, hormone action or parenteral protoplasmic stimulating action is not clear. After treatment with ovarian extracts, menstruation became regular in the first two patients treated by Richter and the skin eruptions disappeared. In the other three patients, retrogression of the cutaneous manifestations paralleled the disappearance of the symptoms of deficiency.

Relation of Blood Groups to Diseases: Heterohemagglutination.—From about 2,000 examinations of different subjects, Warnowsky has obtained the impression that a relation exists between the blood group and certain diseases, and particularly that certain symptoms and also the psychic behavior depend on it. The functional aphonia of hysteria, the "urge to a distance," and split personality are found most often in patients of group A; the "flight into illness," continuously high temperatures, distension of the abdomen, atony of the intestines, transitory gland swellings, paralyses (i. e., predominance of somatic symptoms) occur more frequently in hysterical patients of group 0; extreme affective actions in those of group B. Patients of blood groups A, B and AB present the picture of ordinary neurasthenia, and the patients of group O that of psychasthenia. In 80 per cent of the cases, Warnowsky was able to determine the group by serologic examination. He lists a number of diseases for which persons of blood groups A, B and O, respectively, show a special predisposition. In his study of heterohemagglutination, the author included the blood of a number of men, horses, pigs, dogs, steers, sheep, chickens and a cat. He concluded that blood group determination has a very limited field in forensic medicine. A sometimes partial, sometimes complete relationship between human and animal blood occurs, hence theoretically an organ transplantation from a dog or pig to a human being of group B would be conceivable.

Raw Food Diet.—A diet of raw food given to three healthy persons caused a slight increase in the acidity of the urine. The specific weight remained about the same, because of the relative dryness of the raw diet. On the other hand, the amount of urea, uric acid and sodium chloride in the urine fell. The first two sank to about half that on the mixed diet and the sodium chloride to less than a third. On a raw diet lack of salt is more easily supported than on a salt-free mixed diet.

Strahlentherapie, Berlin

27: 1-196, 1927

Treatment of Myoma and Hemorrhagic Conditions of Uterus. C. J. Gauss.—p. 5.
*Irradiation of Cancer of Female Genitalia. F. Gál.—p. 27.
Technic of Radium Application in Gynecology. H. Weigand.—p. 54.
Use of Radium in Rectum. S. Simon.—p. 70.
Radium Treatment of Benign Lesions of Women. E. Ritter von Seuffert.—p. 81.
Effect of Roentgen Rays on Insulin Activity. E. Vogt.—p. 106.
Effect of Roentgen Ray Irradiation on Kidney. D. A. Willis and A. Bachem.—p. 121.
Roentgen-Ray Dosage. H. Küstner.—p. 124.
Hardness of Roentgen Rays in Relation to Erythema. P. Hess.—p. 146.
Exact Determination of Roentgen-Ray Unit 1 in Cleveland Clinic Measuring Station. O. Glasser.—p. 160.
Relationship of Distribution of Deep Therapy Dosage to Type of Apparatus. D. N. Nasledow and T. M. Kačura.—p. 169.
Measurement of Therapeutic Light. H. Malten.—p. 187.

Irradiation of Cancer of Female Genitalia.—Gál's observations embrace a study of 1,400 cases of cancer of the female genitalia treated by irradiation in the Budapest clinic. Operative removal and irradiation have proved thus far to be the only methods of real value. The author considers irradiation an adjunct to operation. The beneficial effect of preoperative irradiation is seen in disinfection of the area and in limitation of the growth, so that an inoperable case can sometimes be made operable. Its use is objected to on the ground that it makes the subsequent intervention much more difficult, especially where an extensive plastic operation is required. It also renders the patient more toxic because of the rapid absorption of broken down cancer cells. Postoperative irradiation is always indicated. A decided improvement

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resulted from a combination of radium and roentgen-ray treatment. Fistulae and inflammations were thus avoided. Patients treated with roentgen rays frequently exhibited constitutional effects such as vomiting and diarrhea. Dermatitis and ulcerations have not been observed since the introduction of the newer technic. Inoperable cases of cancer of the body of the uterus reacted well to roentgen-ray therapy. Forty per cent of these were cured as estimated by the five year standard. Borderline cases of cancer of the neck should preferably be treated by irradiation. Results from radical surgical procedure are not better than from irradiation and the primary operative mortality is very high. Inoperable cases should receive the benefit of irradiation. Two hundred and eighty-four cases of inoperable cancer of the neck, some of these entirely hopeless, were treated. Of these, nine were cured and free from symptoms five years later; 160 showed temporary improvement, and eighty were refractory to treatment. No relationship between the histologic character of cancer cells and their sensitiveness to roentgen rays was noted.

Wiener klinische Wochenschrift, Vienna

40: 1277-1308 (Oct. 13) 1927

*Combination of Cardiac Asthma and Angina Pectoris. F. Brunn.—p. 1277.
*Spondylarthritis Deformans from Standpoint of Internist. O. Weltmann and O. Gerke.—p. 1281.
*Epilepsy in Vienna Surgical Clinic. F. Driak.—p. 1285.
*Myopia in Arteriosclerosis. A. M. Rosenstein.—p. 1287.
New Instruments for Thoracoscopy. H. Maendl and E. Kornitzer.—p. 1288.
Genesis of Poikilocytosis. E. Kanellis.—p. 1290.
Auscultation of Lungs. A. Winkler.—p. 1292. C'td.
Aphorisms on Caverns. M. Haudek.—p. 1295.
Clinical Medicine and Roentgenology. A. Wolff-Eisner.—p. 1296.
Roentgenotherapy in Hyperfunction of Thyroid. F. Pordes.—p. 1297.
Treatment of Urinary Incontinence in Men. H. G. Pleschner.—p. 1298.
Diabetes Mellitus in Childhood. R. Wagner. Supplement.—pp. 1-15.

Combination of Cardiac Asthma and Angina Pectoris.—Brunn found that injection of solution of pituitary relieved cardiac asthma promptly. Pure angina pectoris was not improved, and was in some cases even made worse by the injections, but in the combination of paroxysmal dyspnea with anginal pain all the symptoms disappeared after the pituitary treatment.

Spondylarthritis Deformans from Standpoint of Internist.—Weltmann and Gerke protest against the neglect by internists of examination of the spinal column. Spondylarthritis deformans, one of the most frequent diseases of the spine, falls almost wholly within the field of internal medicine. Tenderness on pressure or on tapping speak against spondylarthritis deformans and suggest a destructive process. In the cervical spine spondylarthritis deformans may be manifested by occipital neuralgia and muscle and skin tenderness. The symptoms may be unilateral or bilateral. The pains come on in attacks with intervals that are at first free, later not entirely so. In the lower cervical and upper dorsal segments, the disease causes pains in the scapular region. For a long time they may remain slight and suggest tuberculosis. Paresthesias may be present in the arms and hands. With the process in the middle and lower dorsal vertebrae, the clinical picture resembles that of pains from indurations following pleuritis, but they are less under the influence of respiration. Intercostal neuralgias are common. There may be pain in the region of the heart. Girdle pains similar to those in tabes may characterize an attack in the lower dorsal and upper lumbar spine, or the symptoms may mislead the internist to a diagnosis of disease of an abdominal organ. With the localization in the lower lumbar spine or in the sacro-iliac joint, localized pain on crossing the legs is a particularly characteristic symptom. The symptoms are similar to those of lumbago. After the attack has ceased, there remains limitation of motion in the spine. In all localizations, diagnosis is aided by observation of the condition of the other articulations and by the roentgen ray.

Epilepsy in Vienna Surgical Clinic.—Twenty-eight patients with traumatic epilepsy and the same number with genuine epilepsy were under prolonged observation in the outpatient department in the last few years. In eleven cases there were recognizable anomalies of the brain (hydrocephalus, tower skull, micronanocephalus). In six cases a change in the filling of the ventricles was demonstrated. Barbital sufficed to control the disease in most of the cases. Twelve patients, three with traumatic, the others with genuine epilepsy, were treated surgically. In the first group there were four cures of from two and one half to four years and one case of improvement. In the second group two patients, in whom suprarenalectomy was done, have been cured for from one and one half to three years. Periarterial sympathectomy was performed on one patient with genuine epilepsy; he remained free from attacks for three months. Nine months after the operation he died of brain abscess.

Myopia in Arteriosclerosis.—Rosenstein reports five cases of myopia, developing slowly on a basis of arteriosclerosis.

Zeitschrift f. d. ges. Neurol. u. Psychiat., Berlin

110: 337-694 (Sept. 10) 1927

Brain Lesion Revealed by Encephalography with Iodized Sesame Oil. H. Pinéas.—p. 337.
Angiomatosis of Central Nervous System. A. Schuback.—p. 359.
Psychic Disturbance After Attempted Suicide by Hanging. F. Salinger and H. Jacobsohn.—p. 372.
Innervation of Thyroid. N. A. Popow.—p. 383.
*Disease of Adolescence Resembling Chronic Chorea. H. Zingerle.—p. 398.
Narcolepsy or Encephalitis? A. Kluge.—p. 415.
Larval and Atypical Cases of Epidemic Encephalitis: Changes in Spinal Fluid, Especially in Chronic Cases. A. W. Neel.—p. 422.
Constitutional Types in Javanese Race. P. Travaglino.—p. 437.
Metallic Salt Therapy with Small Optimum Doses. L. E. Walbum.—p. 493.
Takata Ara's Colloidochemical Spinal Fluid Reaction in Two Hundred Cases. E. Blum.—p. 504.
Suggestion. V. Strasser.—p. 519.
Psychotherapy of Sexual Anomalies. C. Strasser.—p. 528.
New Gold-Sol Reaction of Spinal Fluid. A. von Sarbó.—p. 549.
Paranoic Behavior in Health. O. Kant.—p. 558.
"Healthy Will" in Compulsive Neurosis. H. Hoffmann.—p. 580.
Reduplicating Paramnesia (Pick) and Related Symptoms in Progressive Paralysis. K. Westphal.—p. 585.
Symptomatology and Diagnosis of Hemorrhagic Internal Pachymeningitis. R. Arend.—p. 611.
Origin of Convulsive Attack in Genuine Epilepsy. H. Meyer.—p. 622.

Disease of Adolescence with Symptoms of Chronic Chorea, Nonhereditary and Without Mental Disturbance.—The case described presents an early form of nonhereditary chronic chorea which is possibly a sequela of an influenzal encephalitis. The chorea-hypertonic syndrome is clearly expressed. The unusual features are the apoplectiform onset of the symptoms with a tonic spasm of the trunk resembling dystonia musculorum deformans, the many thrashing movements, the inclination to synchronous and pseudocoordinated movements of the limbs and especially the intense automatosis which came on not only as a reaction, but also spontaneously through rotation of the body, and disappeared as the condition improved. Improvement was brought about by the use of strontium bromate and hyoscin.

Zeitschrift für Krebsforschung, Berlin

25: 423-499 (Oct. 31) 1927

Relationship Between Nerves and Tumors. T. Tsunoda.—p. 423.
*Incidence of Cancer of Lung. R. Probst.—p. 431.
Technic of Tumor Inoculation. P. Zadik.—p. 454.
Influence of Combined Serum-Lipoid Treatment on Tumor Growth. P. Rondoni.—p. 455.
Cancer and Vegetative Nervous System. M. J. Lorin-Epstein and A. W. Bondartschuk.—p. 464.
Combined Adenocarcinoma and Cancroid of Larynx. H. Šikl.—p. 473.
Carcinoma Cells and Heterologous Systems in Vitro. A. Fischer.—p. 482.

Incidence of Cancer of the Lung.—Of the seventy-six cases analyzed by Probst, sixty-two were in males, fourteen in females; thirty-six involved the right lung, forty the left. In fifty-seven cases, the tumor was situated near the hilus. In four cases, only the main bronchus was involved. In sixty-five cases there was a direct relationship with a bronchus. In two cases the tissue of origin was alveolar epithelium. There were twelve cancroids, twelve solid carcinomas, six adenocarcinomas, four cylindrical cell cancers and four epitheliomas without cornification. The size of these tumors varied from that of an apple to that of a head. Often a whole lobe was involved and occasionally an entire lung. Metastases were present in sixty-two of the cases. In twelve cases lymph nodes only were the seat of metastases. Some of the organs in which metastases were found were: liver, twenty-seven cases; pleura and lung, twenty-four cases each; bones, seventeen cases; kidney and suprarenal gland, fourteen cases each;

brain, ten cases; pericardium, nine cases; heart and thyroid, six cases each; pancreas and intestine, four cases each; stomach, ovaries and skin, three cases each. Probst stresses the difficulty of diagnosis. Of sixty-five clinical diagnoses, only twenty-four were verified. In twelve cases the localization of the trouble was correct, but the tumor was missed; thirteen times a tumor was diagnosed, but its primary seat was missed. In sixteen cases, neither tumor nor localization were discovered.

Zentralblatt für Chirurgie, Leipzig

54: 3009-3072 (Nov. 26) 1927

Recurrence of Ulceration After Billroth I Operation. F. Starlinger.—p. 3011.
*Results of Radical Operation for Gastric and Duodenal Ulcers. M. Friedemann.—p. 3015.
Compression Fracture of Vertebra. K. Gaugele.—p. 3023.
Phlebarteriectasy. R. E. Christensen.—p. 3025.
Metallic Splint for Treatment of Injuries of Extensor Tendons of Fingers. E. Glass.—p. 3027.
Extension Splint for Arm. E. Balogh.—p. 3029.
Treatment of Fractures of Radius. Becker.—p. 3033.

Results of Radical Operation for Gastric and Duodenal Ulcers.—The author has performed 450 radical resections for gastric or duodenal ulcer and was able to follow up 374. Two hundred and twenty-one of these were operated on after the Billroth I method and 153 after Billroth II. Comparison of the results in the two methods showed a slight superiority for Billroth I. The results obtained from both were as follows: excellent, in 36 per cent; good, in 42; fair, in 16.3 and total failure in 4.8 per cent. The cases were observed for from three to six years. At least 95 per cent were either cured or improved. When the pylorus was resected with enough of the stomach to prevent the presence of free hydrochloric acid, recurrence was rare. The criterion should be how much stomach was left behind rather than how much was resected. Explanation of subjective complaints in the absence of chemically or roentgenologically demonstrable deviations from the normal is difficult. Patients with small ulcers and less severe lesions are more likely not to obtain relief from operation. A well recognized type of patient frequently not benefited by operation is the asthenic, emaciated individual with an atonic, ptotic stomach and a small ulcer. Compared with other methods, radical resection has so far given the best results.

54: 3073-3136 (Dec. 3) 1927

*Ligation of Splenic Artery. A. Weinert.—p. 3076.
Dry Diet in Tuberculosis of Bone. H. von Baeyer.—p. 3080.
Dietetic Ileus. E. Metge.—p. 3081.
*Successful Secondary Ligation of Ileocolic Vein for Mesenteric Thrombophlebitis Complicating Appendicitis. E. Melchior.—p. 3083.
Treatment of Inoperable Cases of Hypertrophied Prostate and of Cancer of Prostate with Pregl's Pepsin Solution. E. Grunert.—p. 3088.
Pulmonary Embolism Resembling Traumatic Renal Hemorrhage. A. Peters.—p. 3090.
Failures and Dangers of Saccharated Ferric Oxide Treatment. R. Kraft. p. 3092.
Anaphylaxis Following Blood Transfusion. W. Bender.—p. 3094.
Roentgen-Ray Demonstration of Gauze Sponge in Peritoneal Cavity. E. Makai.—p. 3098.

Ligation of Splenic Artery.—Hypercythemia has developed in some individuals following a splenectomy. Apparently, the procedure is not without untoward effects on the organism. Weinert thinks that because we know that the spleen is a storage organ for blood, ligation of its artery is to be looked on as a physiologic procedure. It is indicated in cases of high grade anemia of unknown origin, in thrombocytopenia, in intermittent hemolysis, as well as in hepatic cirrhosis and in those cases in which removal of the spleen is impossible for purely anatomic or mechanical reasons.

Successful Secondary Ligation of Ileocolic Vein Performed for Mesenteric Thrombophlebitis Complicating Appendicitis.—Melchior reports a case in which, eleven days after removal of a perforated gangrenous appendix, the patient began to have chills. At a second operation, the abdomen was opened by a midline incision and the ileocolic vein was ligated just below its junction with the superior mesenteric vein. At this level the ileocolic as well as the right colic vein appeared to be normal. The mesentery in the direction of the cecum was edematous. Further exploration was impossible because of the nearness of the area of suppuration. The patient recovered. Braun was the first to point out a logical basis of ligation of the ileocolic vein, that it is by this vessel that extension of infection takes place. In the literature Melchior was able to find eight cases in which this procedure was carried out in the course of the primary operation for appendicitis. The only other case beside the author's in which a secondary operation was undertaken for the purpose of ligation of the ileocolic vein is that of Wilms. His patient likewise recovered. Melchior concludes on the basis of this experience, that reoperation for this otherwise inevitably fatal complication is justified.

Zentralblatt für Gynäkologie, Leipzig

51: 2713-2776 (Oct. 22) 1927

Methods and Results of Reticulo-Endothelial Function Tests. K. Lundwall.—p. 2714.
Human Sterility. G. L. Mönch.—p. 2730.
*Cyclic Bleeding from Fistula. G. Halter.—p. 2739.
*Hemorrhages in Menopause. W. Lahm.—p. 2742.
*Influence of Abortion on Future Labors. K. Atzerodt.—p. 2746.
New Pertubation Apparatus. S. Ohno.—p. 2750.

Cyclic Bleeding from Fistula.—A woman, aged 23, had a fistula of the abdominal wall, which had existed since an operation, sixteen months previously, for inflammation of the adnexa. During menstruation the fistula discharged blood, at other times a small quantity of pus. The menses had recently been protracted. The fistula with the surrounding scar tissue was excised. There was no connection between the lumen of the tube and the fistula. The tube was free of blood, nor did it contain endometrioid tissue. Adenomas were scattered over the tubal wall, but they did not appear to be involved in the menstruation. The blood discharged from the fistula apparently came from the granulation tissue.

Ovarian Carcinoma and Hemorrhages in the Menopause.—In a woman, aged 60, with carcinoma of left ovary and uterine hemorrhages nine years after the menopause, a corpus luteum with well preserved lutein cells was found in the right ovary. There was desquamation of the uterine mucous membrane with partial adenomatous degeneration. There was also regeneration of the uterine mucosa in the manner of postmenstrual proliferation. It appeared that the carcinoma had restarted ovarian function and that the bleedings were true menstrual bleedings, under the influence of the ovarian parenchyma.

Influence of Abortion on Future Labors.—Atzerodt compares the course of labor in 3,964 women who had not previously had an abortion with that in 184 women who had had an abortion. In the first group disturbances from adherent placenta, delayed separation of placenta, weak pains, transverse, oblique and pelvic presentations, placenta praevia, eclampsia and postpartum hemorrhages were present in 12.9 per cent of the cases; in the second group in 9.2 per cent. He therefore fails to find that a previous abortion influences future labors unfavorably. The material studied was that of the Giessen clinic.

Hospitalstidende, Copenhagen

70: 937-964 (Oct. 6) 1927

*Sarcoma-Like Tumors of Stomach. F. Djørup and H. Okkels.—p. 937.

Sarcoma-Like Gastric Tumors.—Djørup and Okkels describe a case of tumor in the stomach in a young woman with vague dyspeptic symptoms and pronounced occult bleeding of long duration, causing a grave anemia. Diagnosis was made with the aid of roentgen-ray examination. Resection resulted in recovery which has persisted fourteen months (to date). The microscopic examination suggested a neurinoma in partial myxomatous degeneration, but the authors do not exclude the possibility of beginning malignant degeneration. They are particularly interested in the occurrence, among gastric sarcomas and fibromas under many different names, of cases with long-continued, greatly exhausting, and not especially characteristic clinical course (vague dyspepsia and occult bleeding), the roentgen-ray picture often presenting a characteristic divided shadow defect. Removal of the round, sometimes broad-stemmed tumor with one or more sharply defined ulcerations, unlike the usual gastric ulcer, on its surface, is followed by permanent recovery. Ten cases of sarcoma-like tumors from the literature are cited.

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